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Developing an Adaptability Training Strategy and Policy for the Department of Defense (DOD)

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William R. Burns, Jr.

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About This Publication

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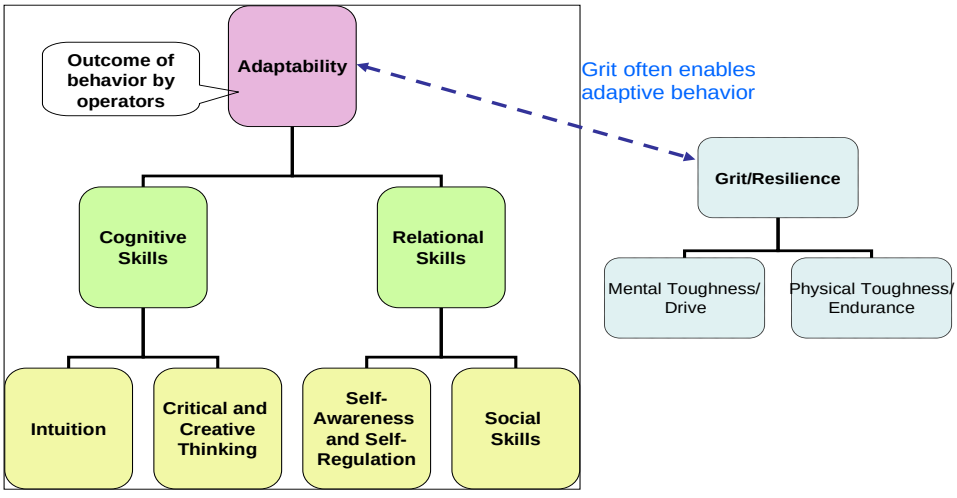
Executive Summary

The Office of the Under Secretary of Defense (Personnel and Readiness) (OUSD(P&R)) asked the Institute for Defense Analyses (IDA) to support it in the development of an adaptability training strategy and to suggest revisions to current training policy to implement such a strategy. Additionally and in parallel, IDA was to assist in the development and execution of a related proof-of-concept experiment. This tasking came as a follow-on to a previous study IDA conducted that found, given the uncertainty of current and future threats, the key skill or attribute that individuals, units, and teams of commanders and leaders need to acquire is adaptability.[1]

In the original study, IDA developed a specific model of adaptability, which, based on the related work of contributors to the study and further research, has been updated to include the concepts of grit/resilience and self-regulation. The model's definition of adaptability is: *the operable capacity to bring about an effective response to an altered situation*. Thus, we, the IDA study team, consider adaptability to be a meta-skill—a transcending or overarching capability that encompasses a specific set of component skills that can be used in varying combinations across a wide range of situations. As a meta-skill, adaptability, or adaptive performance, requires the integration of both cognitive and relational skills. The IDA Adaptability Model is depicted below.



IDA Adaptability Model

[1] John C.F. Tillson, Waldo D. Freeman, William R. Burns, John E. Michel, Jack A. LeCuyer, Robert H. Scales, D. Robert Worley. *Learning to Adapt to Asymmetric Threats*. IDA Document D-3114. Alexandria, VA: Institute for Defense Analyses, August 2005.

We divided the study into two parts. In Phase I, we conducted a comprehensive survey of current adaptability training initiatives undertaken in various military and non-military venues and determined the "best of breed" among those initiatives. Based on the survey, we developed recommendations for the goals and elements of a proof-of-concept adaptability training experiment to be conducted by another organization—an experiment intended to validate the proposition that purpose-designed training can produce more adaptive performance. Phase I was documented in an interim report published in 2008.[2]

In Phase II of the study, the focus of this paper, we monitored the development and execution of two adaptability training experiments conducted by PDRI, the organization designated by the OUSD(P&R). Based on the results of the experiments, and also on previous and continuing research in all areas of adaptability training, we developed an adaptability training strategy framework as well as recommendations for changes to training policy intended to promote adaptability training.

We have analyzed the results of all our research in the context of the IDA model for adaptability and with a view towards the range and types of tasks the military may be called upon to perform. This has produced six major findings: First and of fundamental importance, despite frequent reference to the importance of adaptability by senior military leaders and a general consensus among academics and scientists as to what constitutes adaptability, there is no DOD-recognized definition of adaptability. Secondly, all of our discussions, within the U.S. military and among academics and scientists, have tended to validate the IDA model of adaptability, which integrates both cognitive and relational aspects of performance and which has practical meaning for implementation of learning initiatives. Third, and significant because of the previous lack of empirical data, the experiments conducted by PDRI demonstrated that purpose-designed adaptability training can produce more adaptive performance. Fourth, adaptability learning is a function of education and experience, as well as training; and the greatest adaptability learning occurs in situations where adaptability learning in one sphere is reinforced by similar learning in both of the other spheres. Fifth, one key to developing adaptable leaders, leader teams, and units at every level is repeated exposure to "crucible experiences"[3] that are commensurate with the operational environment and level of responsibility of each. Finally, senior leaders throughout DOD have identified the need to be able to adapt to the uncertainties of the evolving world, but they have not established

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[2] William R. Burns, Jr. and Waldo D. Freeman, *Developing an Adaptability Training Strategy and Policy for the DoD, Interim Report*, IDA Paper P-4358, (Alexandria, VA: Institute for Defense Analyses, October 2008).

[3] A crucible experience is "a defining moment that unleashes abilities, forces crucial choices, and sharpens focus. It teaches a person who he or she is." Warren G. Bennis and Robert J. Thomas, *Geeks & Geezers: How Era, Values, and Defining Moments Shape Leaders*, (Boston, MA: Harvard Business School Press, 2002), 16.

an integrated learning environment that meets this goal. In fact, we identified only one DOD example of purpose-designed adaptability training and no example with metrics to measure the effectiveness of the training.

As the central product of this study, the adaptability training strategy we propose provides an outline and a hypothetical roadmap for developing more adaptive leaders, teams, and units at every stage of their careers and at every level of military organization. The strategy recognizes that resources are necessary but limited and delineates the ends, ways, and means necessary for the establishment of a learning environment conducive to the development of adaptability.

Our training policy recommendations recognize that any effort to be effective must be part of a comprehensive plan throughout DOD to enhance adaptability and that plan must have clearly defined objectives. Today, training policy documents frequently refer to adaptability, but never define it. This allows for adaptability to be understood in myriad terms and all training and experience to be considered as contributing to adaptability. Thus, our most fundamental policy recommendation is the adoption of an explicit definition of the word "adaptability" and an articulation of the specific skills, competencies, and attributes that contribute to adaptability. As a corollary to this, we recommend the establishment of a robust and focused research and development program aimed at further defining and measuring adaptability and adaptive performance; identifying ways to train adaptability; measuring the effect of adaptability training on operational performance; developing metrics to measure the effects of adaptability training; and assessing the effects of organizational culture on adaptability. We recognize the limited time available for training and the value of traditional training focused on tactics, techniques, and procedures. Thus, our recommendations emphasize ensuring that existing exercises are structured to include "crucible experience" training events, that routine training consists of more variety, and that trainers and mentors have the motivation, experience, and preparation required to guide training and provide feedback essential to successful learning. Such training practices would be fully consistent with the on-the-job, but often costly, development of adaptability observed in young men and women who are meeting the challenges of new and unpredictable situations in the crucibles of Iraq and Afghanistan. Moreover, these training practices would help compress the time now needed for adaptability skills to develop naturally, where such skills are an outgrowth in part of the tacit knowledge[4] that evolves during years of experience.

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[4] "Tacit knowledge (TK) is knowledge drawn from everyday experience that helps individuals to solve real-world, practical problems." J. Hedlund, G.B. Forsythe, J.A. Horvath, W.M. Williams, S. Snook, and R. Sternberg, "Identifying and assessing tacit knowledge: understanding the practical intelligence of military leaders," *Leadership Quarterly*, Volume 14, Number 2, (April 2003): 117-140.

The major recommendations of this study for OSD can be summarized as follows:

- Adopt an explicit DOD definition of adaptability.
- Identify the specific skills and competencies required for adaptive performance within the military.
- Establish as DOD policy that operational training of units of all sizes and the training, education, and career development of individuals will seek to enhance the skills and competencies required for adaptive performance.
- Establish a senior and enduring leadership group within DOD responsible for the design and oversight of a comprehensive, long-term adaptability training strategy that husbands limited resources.
- Establish detailed Service-level roadmaps, or plans of actions and milestones, that will effectively implement the adaptability training strategy.
- Establish a robust adaptability research and development program.

Contents

Appendices

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1. Introduction

Rouze up O Young Men of the New Age! Set your foreheads against the ignorant hirelings! For we have Hirelings in the Camp, the Court & the University: who would if they could, for ever depress Mental & prolong Corporeal War.

From Preface to *Milton*—by William Blake

A. Purpose

The Institute for Defense Analyses (IDA) was tasked to support the Office of the Under Secretary of Defense (Personnel and Readiness) (OUSD(P&R)) in the development of an adaptability training strategy and related-of-concept experiment and to provide suggested revisions to current training policy to implement such a strategy. This paper details results of research conducted to support development of an adaptability training strategy and proof-of-concept experiment, results of two proof-of-concept experiments, a proposed training strategy outline, and recommended training policy changes intended to promote the development of adaptability. Finally, the study makes recommendations with regard to potentially productive avenues for future research.

B. Background

In June 2004, The OUSD(P&R) tasked IDA to conduct research that would assist it in the development of a training and exercise environment that would prepare U.S. forces to respond to asymmetric threats. In August 2005, IDA issued a report of its findings.[1]

IDA concluded that asymmetric threats were only one aspect of the current and future operating environments, the chief characteristic of which is unpredictability. The report went on to make the case that given the uncertainty of current and future threats, the key skill or attribute that individuals, units, and teams of commanders and leaders need to improve on is adaptability.

IDA depicted adaptability in very specific terms as a meta-skill that requires the integration of both cognitive and relational skills. The study also explored the requirements for learning to be adaptable. Following submission of the formal report and as called for in the original tasking; IDA provided a draft training roadmap, entitled

[1] John Tillson, et al., *Learning to Adapt to Asymmetric Threats*, IDA Document D-3114 (Alexandria, VA: Institute for Defense Analyses, August 2005).

"Learning Adaptability Strategy."[2] The process of developing that draft led the study sponsors and IDA researchers to understand that additional research and an experiment to prove the feasibility of actually training adaptability were required in order to gain broad support within the Services for training policy changes aimed at pursuing an adaptability training strategy.

While senior leaders often spoke of adaptability and some indicated interest in enhancing adaptive performance, there was no scientific evidence to support the idea that adaptive performance could be enhanced by specific training interventions. Subsequently, in May 2007, the OUSD(P&R) tasked IDA to undertake the current study, which is intended to support that office in the development of an adaptability training strategy, in the conduct of an associated proof-of-concept experiment to provide tangible support for such a strategy, and in the revision of current training policy to implement such a strategy.

C. Study Overview

The study was divided into two phases. In Phase I, we:

- Conducted a comprehensive survey of current adaptability training initiatives undertaken by:
  - The four military Services,
  - Other government agencies
  - Industry,
  - Academia,
  - Selected foreign militaries.
- Analyzed salient elements of each initiative and determined the "best of breed" among those initiatives.
- Sought to identify metrics associated with initiatives and experiments.
- Identified goals and elements of a proof-of-concept adaptability training experiment to be conducted by another organization.
- Developed preliminary recommendations for changes to training policy intended to promote adaptability training.

In Phase II of the study, we:

- Monitored the development and execution of two adaptability training experiments by PDRI, the organization designated by the OUSD(P&R).
- Developed an adaptability training strategy framework.

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[2] John Tillson, *Learning Adaptability Strategy* (Draft) (Alexandria, VA: Institute for Defense Analyses, May 2006).

- Developed final recommendations for changes to training policy intended to promote adaptability training.

D. Methodology

In the first phase of this study, conducting a comprehensive survey of current adaptability training initiatives, we recognized that the development of adaptability skills is important, not just to the military, but throughout government and the business world. We also recognized that non-U.S. entities have an equal interest in the subject.

With the cooperation and assistance of our sponsor and the Naval Air Warfare Center Training Systems Division in Orlando, Florida, we posted a Request for Information (RFI) on the government sponsored website Fed Biz Opps, seeking information concerning existing training and education programs used in industry, academia, and other government agencies to develop and enhance adaptability skills and the four components thereof as defined by IDA in its original study. We received a number of responses to the RFI.

Our original study and draft strategy for adaptability training recognized the potential role of technology. Specifically, we postulated that well-designed virtual and constructive simulations could enhance the experience level of the target training audience in a variety of venues, reach a broad audience, and do so much more inexpensively than would be the case with live simulations. With this in mind, we attended the annual Interservice/Industry Training, Simulation & Education Conference in November 2007. At the conference we viewed demonstrations of a number of existing programs with relevance for adaptability training, attended symposiums and the presentation of papers related to developing adaptability, and met industry representatives and research personnel involved in work related to our study.

A particularly productive aspect of our study was a symposium that we facilitated at IDA headquarters in December 2007. At the invitation of the Deputy Under Secretary of Defense (Readiness), each of the Services sent representatives to present their "best of breed" programs for developing adaptability and adaptability-related skills.[3] Academics, consultants with a history of working with the military on adaptability related training, and other IDA personnel working on related projects or with a background in adaptability-related research also attended. In addition to sharing information during briefings, participants benefited from the dialogue and developed a network of people in various fields interested in adaptability learning. This network provided significant opportunities for additional research and access to experts with whom additional findings could be vetted.

[3] A listing of Service Briefings is at Appendix B.

Recognizing that the invitation to all the Services to attend the symposium had inadvertently failed to include those organizations tasked to provide joint education and training; we subsequently contacted and met with key individuals in those joint organizations. Our subsequent dialogue with the staff at the National Defense University was of particular value.

A wide-ranging aspect of our study was our effort to identify adaptability-related training and education efforts in other government agencies, industry, and foreign militaries. Within the government, we primarily focused on various intelligence organizations, all of which have undertaken initiatives to improve the preparation of their analysts in areas related to adaptability. With regard to foreign militaries, we benefited from a limited number of contacts within allied military organizations, from a review of selected articles, documents, and reports, both foreign and domestic, and from related work being done for our sponsor by the RAND Corporation concerning current training methodologies of specific foreign militaries. Our research into adaptability-related training conducted by industry for the benefit of its employees focused on initiatives that go beyond improving organizational efficiency. This included, in particular, investigating techniques employed by private organizations devoted to providing leadership research, education, and training.

Based on the initial research, we identified the goals and elements of a proof-of-concept adaptability training experiment. Our sponsor used these ideas to solicit proposals from qualified organizations interested in conducting an experiment. He subsequently selected PDRI, a premier research and consulting firm in the field of industrial-organizational psychology, to design and conduct the experiment.

PDRI developed a plan, including metrics, for validating the concept that adaptability can be improved through training that is specifically designed for that purpose and vetted that plan with both military training and education professionals and academic experts. Using that plan, PDRI worked with the Army staff at Fort (Ft.) Riley, Kansas to incorporate adaptability training into the training provided to members of the Military Transition Teams (MiTTs) deploying to Afghanistan. Then taking the lessons learned from that experience, PDRI personnel developed a modified plan for use by the U. S. Marine Corps (USMC) in The Basic Course at Quantico, Virginia. Using the revised plan, the Marine Corps staff took the initiative in integrating adaptability training into the course provided to new Marine Corps officers.

As we monitored the development and execution of the experiment, we continued to research the development of adaptability skills and to explore techniques for teaching and training adaptability. Of particular interest was our discovery of the adaptability related initiatives of the Australian Army and, specifically, its work with complex decision making. Our sponsor hosted a tutorial at IDA led by Dr. Anne-Marie Grisogono, the lead researcher for the Australian program; and Dr. Rose Mueller-Hanson, the leader of the

PDRI team, travelled to Australia to work with Dr. Grisogono in the conduct of one of her experiments. We also observed Dr. Alexander Ryan, a colleague of Dr. Grisogono, teaching complex decision making in the U.S. Army's School of Advanced Military Studies (SAMS) course at Fort Leavenworth.

As we gained new perspectives, we analyzed our findings in the context of the IDA model for adaptability and with a view toward the range and types of tasks the military may be called upon to perform. Throughout the study, we were aided in our analysis by training experts at IDA, as well as academics and other researchers studying adaptability issues.

Concurrent with the ongoing research and the conduct of the experiments at Ft. Riley and Quantico, we reviewed all Office of the Secretary of Defense (OSD) policy that appeared to be potentially relevant to the training and development of adaptability.

Finally, based on our research and the experience gained in observing the two experiments, we constructed a comprehensive outline of an adaptability training strategy, including a hypothetical roadmap to guide the execution of the strategy over a ten year period, and developed recommendations for policy initiatives aimed at promoting adaptability training and effecting an adaptability training strategy. Important to all aspects of this study has been our recognition that the viability of any policy and strategy will be dependent on senior leaders throughout DOD who appreciate the value of developing more adaptable individuals, teams, and units and the involved commitment of those leaders in supporting sustained, purpose-designed adaptability training and development efforts.

2. IDA Model of Adaptability

A. Graphic Depiction and Definition

In our original study, we developed a model of adaptability—henceforth referred to as the IDA model of adaptability—depicted in Figure 1.

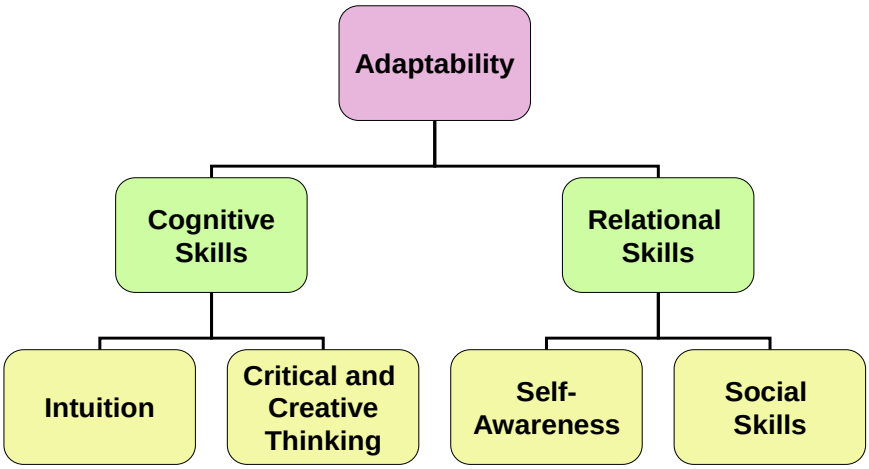

Figure 1. IDA Adaptability Model from Original Study

This parsimonious depiction reflects the notion that adaptability is itself a capability. It is a meta-skill —a transcending or overarching capability that encompasses a specific set of component skills that can be used in varying combinations across a wide range of situations. As a meta-skill, adaptability, or adaptive performance, requires the development and integration of both cognitive and relational skills. We have defined adaptability as "the operable capacity to bring about an effective response to an altered situation."[4] Adaptability requires the capacity to take decisive and effective action in a timely manner, often under pressure. In that sense, adaptability is like courage: until it is demonstrated, one cannot be sure it exists. It should be noted that while recognizing there are other factors that contribute to adaptability, including individual predisposition and organizational openness, we have focused the IDA model on the adaptability-related

[4] An altered situation can include an enhanced understanding of the situation by the observer, even where the objective situation has not changed. See Rose A. Mueller-Hanson, Johnathan K. Nelson, and Erin Swartout, "Proof of Concept Research for Developing Adaptive Performance: Task 2 Report, Validation Plan." July 2009 (PDRI: Arlington, VA).

skills susceptible to learning interventions. We have not addressed the possibility of training designed to increase individual predisposition for adaptability.

B. Definition of Components of Adaptability

The original IDA study, which led to the IDA model of adaptability, built on the work of numerous scholars and researchers, some of whom are mentioned below. An excellent example of this on the cognitive side of the IDA model is the effort of Dr. J. D. Fletcher to describe cognitive readiness, which he defined as the "mental preparation (including skills, knowledge, abilities, motivations, and personal dispositions) an individual needs to establish and sustain competent performance in the complex and unpredictable environment of modern military operations."[5] Dr. Fletcher suggested that cognitive readiness required the ability to:

- Recognize patterns in chaotic situations
- Modify problem solutions associated with these patterns as required by the current situation
- Implement plans of actions based on those solutions[6]

Pattern recognition (an essential part of intuition), modifying problem solutions (identifying novel approaches to a situation that are also effective), and implementing plans of action (decision making) are fundamental to the IDA model of adaptability. We include here a brief description of each component of that model.

Intuition, as defined in the work of Gary Klein,[7] is the way that individuals translate experience, and the related tacit knowledge,[8] into action. Intuition is an aspect of macrocognition—"…the cognitive functions that are performed in natural (versus artificial laboratory) decision-making settings."[9] Whereas macrocognition is a relatively new term describing functions and processes still being defined and requiring further research, key features of cognition in naturalistic contexts are characteristic of situations requiring adaptability:

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[5] J.D. Fletcher, *Cognitive Readiness: Preparing for the Unexpected*, IDA Document D-3061 (Alexandria, VA: Institute for Defense Analyses, September 2004), 1.

[6] Ibid., 4.

[7] Gary Klein, *The Power of Intuition* (New York: Doubleday, January 2003).

[8] The concept of tacit knowledge as an aspect of practical intelligence and the ability to adapt is discussed at length in Robert J. Sternberg, George B. Forsythe, Jennifer Hedlund, Joseph A. Horvath, Richard K. Wagner, Wendy M. Williams, Scott A. Snook, and Elena L. Grigorenko, *Practical Intelligence in Everyday Life*, (Cambridge, UK: Cambridge University Press), 2000. Sternberg and his colleagues define tacit knowledge as "…knowledge that reflects the practical ability to learn from experience and to apply that knowledge in pursuit of personally valued goals. Tacit knowledge is needed to successfully adapt to, select, or shape real-world environments." 104.

[9] G. Klein, K.G. Ross, B.M. Moon, D.E. Klein, R.R. Hoffman, E. Hollnagel, "Macrocognition," *IEEE Intelligent System* 18, no.3 (May-June 2003): 81.

- Decisions are typically complex, often involving data overload.
- Decisions are often made under time pressure and involve high stakes and high risk.
- Goals are sometimes ill-defined, and multiple goals often conflict.
- Decisions must be made under conditions in which few things can be controlled or manipulated; indeed, many key variables and their interactions are not even fully understood.[10]

Experience allows individuals to recognize what is going on in specific situations (make judgments) and guides how they react (make decisions) in those situations.[11] Experience provides tacit knowledge and pattern recognition. In our original study, we accepted the idea that the greater the experience level of an individual, the more practiced he is in making decisions in a changing environment, and the more and better feedback he has received, the more prepared he will be to trust his judgment in new situations—to change his own actions in an effective manner in response to an altered situation.[12] One defining characteristic of intuitive responding is its rapidity and lack of conscious awareness: based on experience, the intuitive performer recognizes the pattern of stimuli and responds without conscious analysis.

In contrast, critical and creative thinking are conscious processes. We have linked critical and creative thinking, though they are independent concepts, because an effective response to an altered situation will likely require both types of thinking. Both types are performed in an iterative process as an understanding of the changing situation and the consequences of possible responses evolves. As described by Dr. Richard Paul and Dr. Linda Elder, "critical thinking is the art of analyzing and evaluating thinking with a view to improving it."[13] It is the metacognitive process of analyzing one's own thinking or the thinking of another. Creative thinking refers to the generation of novel ideas—innovative and imaginative responses to new or unexpected situations. Faced with an altered situation—whether one that is a variation of a familiar scenario or one that is entirely new, an individual or team is challenged to devise an effective response. Postulating a response requires creative thinking, and evaluating the assumptions underlying the response and the consequences and risks associated with that response requires critical

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[10] Ibid.

[11] Klein, Hiv

[12] This idea is supported by Sternberg and his colleagues: "In fact, learning from experience is one of the defining features of tacit knowledge. Studies of the origin of important practical knowledge and skills of managers indicate that learning from experience plays a greater role than does formal training…Learning from experience is facilitated when the situations are diverse and challenging and provide feedback." Sternberg, et. al., 215.

[13] Richard Paul and Linda Elder, *The Miniature Guide to Critical Thinking: Concepts and Tools*, (Foundation for Critical Thinking, 2006), 4.

thinking. By going through several iterations of such a process, the individual or group seeks to arrive at, if not the best, then at least an effective response.

Determining the best option for an effective response through either intuition or creative thinking requires formulation, either subconsciously or consciously, of a hypothesis explaining the new correlation of data (new situation) including their inter-relationships. The actions taken, or plans made are based upon this hypothesis (best understanding of the facts) not because it is certain to be right but because it appears most likely to be right at the time. It is like a doctor's diagnosis. This process is called "abductive inference" or "inference to the best explanation" in the philosophy of science.[14]

Self–awareness, as described by Prof. Douglas T. Hall of Boston University, "…refers to the extent to which people are conscious of various aspects of their identities and the extent to which their self-perceptions are internally integrated and congruent with the way others perceive them…Self-awareness, then, is a measure of the person's ability to be truly conscious of the components of the self and to observe it accurately and objectively."[15] It includes an individual's recognition of the impact that he or she has on others. In a very practical sense, self-awareness is the ability to recognize one's strengths and weaknesses and the ability to take those attributes into account effectively when considering how best to respond to a new situation.

Social skills are those relational skills that impact an individual's ability to work effectively with others. A key consideration that we brought to our earlier study was the recognition that teams and teams of teams—not individuals—do the work of the Department of Defense. Working effectively with others to respond effectively to change requires a broad range of social skills or competencies in order to manage the relationships involved. The Consortium for Research on Emotional Intelligence in Organizations catalogs broadly recognized social competencies within the Emotional Competence Framework on its website.[16] The framework includes competencies of social awareness—empathy, service orientation, developing others, leveraging diversity, political awareness; and competencies of social skills—influence, communication, leadership, change catalyst, conflict management, building bonds, collaboration and cooperation, and team capabilities. To that list, and in view of the variety of organizations and communities, in and out of government—foreign and domestic, with which today's

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[14] John R. and Susan G. Josephson, *Abductive Inference: Computation, Philosophy and Technology*, (Cambridge University Press, 1996), 5.

[15] D.T. Hall, "Self-Awareness, Identity, and Leader Development," in *Leader Development for Transforming Organizations,* D. V. Day, Stephen J. Zaccaro, Stanley M. Halpin, editors (Lawrence Erlbaum Associates, 2004), 154.

[16] http://www.eiconsortium.org/reports/emotional_competence_framework.html.

military interacts, we add cross-cultural knowledge and skills that take into account cultural differences.

C. Considering Modifications to the IDA Model

Our survey and other research have given us the opportunity to validate this model. As a result, we have modified the model in two ways. First, we make explicit the idea that to be adaptive one must not only be self-aware, but must combine that self-awareness with self-regulation. Daniel Goleman, in his seminal article on emotional intelligence, defines self-regulation as "the ability to control or redirect disruptive impulses and moods [and] the propensity to suspend judgment—to think before acting" and describes the hallmarks of self-regulation as: "trustworthiness and integrity, comfort with ambiguity, [and] openness to change.[17]

Second, during the December 2007 symposium at IDA, Professor Michael D. Matthews of West Point presented his research on non-cognitive predictors of soldier adaptability and performance.[18] He argued persuasively that adaptability requires, in addition to attributes that help soldiers handle high cognitive loads, attributes that enable them to cope with high emotional loads. In particular, Professor Matthews made the case for the importance of developing the attributes of resilience, hardiness, and grit (a measure of passionate pursuit of long-term goals). We accept the importance of these attributes and have added them to our depiction of the components of adaptability. However, we also recognize that mental and physical toughness, corresponding to Matthews' resilience, hardiness, and grit, traditionally have been recognized as essential for military success and that militaries have historically sought to develop those qualities, particularly within their leaders.[19] Therefore we have modified our model to include grit or resilience as an often necessary, but not sufficient, precondition for adaptable performance.

While grit is important in most situations requiring adaptability, we believe that the focus of adaptability learning should continue to be on the skills depicted in the original IDA model, with the addition of the concept of self-regulation. Figure 2 depicts the modified IDA model. Figure 2 also emphasizes the idea that adaptability is not a latent

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[17] Daniel Goleman, "What Makes a Leader?" *Harvard Business Review* (November-December 1998): 95

[18] Michael D. Matthews, "Non-Cognitive Predictors of Soldier Adaptability and Performance," brief presented at Adaptability Symposium 2007, December 2007.

[19] See also: Paul T. Bartone and Dennis Kelly, "Psychological Hardiness in Cadets Predicts Later Adaptability as Army Officers," presented at the American Psychological Society Conference, Boston, May 2010 and Paul T. Bartone, Charles L Barry, and Robert E. Armstrong, "To build Resilience: Leader Influence on Mental Hardiness," *Defense Horizons*, Center for Technology and National Security Policy, National Defense University, Washington, DC, November 2009.

quality, but a tangible meta-skill required to achieve a specific behavior outcome by operators—adaptive performance.

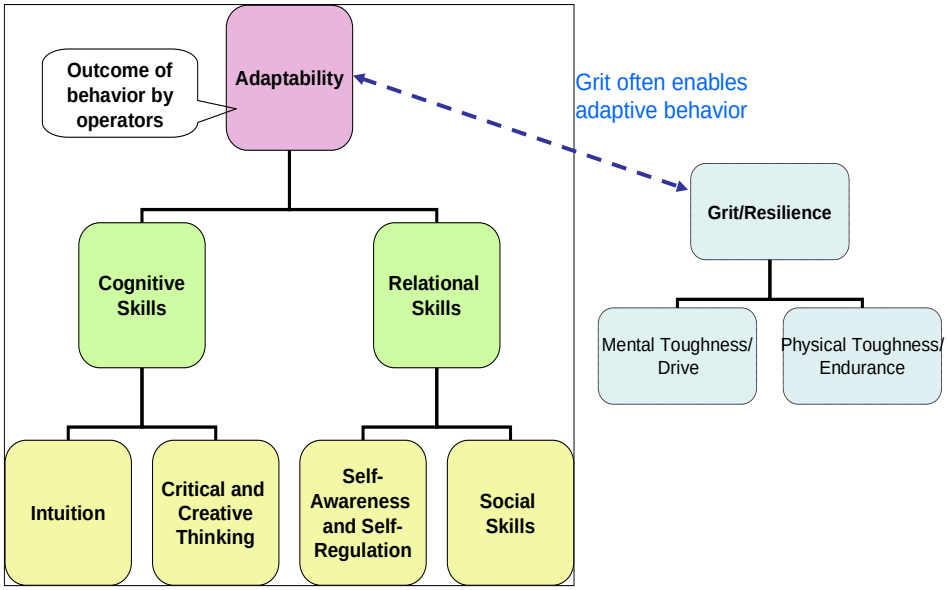

Figure 2. IDA Adaptability Model Enhanced with Grit/Resilience

Through our ongoing literature survey[20] of research concerning adaptability learning and presentations at the adaptability training symposium we facilitated, we became acquainted with additional skills that have been prescribed as essential to adaptability. We compared each of the specific skills with our original depiction of the components of adaptability. We concluded that the IDA model stands up well compared to other taxonomies related to adaptability and that all the skills identified are accommodated by the original IDA model, when modified to include self-regulation and Grit. We also concluded, however, that the adaptability learning gap is in the cognitive and relational skills areas, and we contend that the military should continue to focus specifically on developing cognitive and relational skills, assuming the continuing efforts of all the

[20] Examples of discussions of adaptability and adaptability-related skills by scientists and academics include: E.D. Pulakos, S. Arad, M.A. Donovan, and K.E. Plamondon, "Adaptability in the Workplace: Development of a Taxonomy of Adaptive Performance," *Journal of Applied Psychology*, 85 no. 4 (August 2000): 612-624. Army Research Institute for the Behavioral and Social Sciences, "Developing Adaptive Proficiency in Special Forces Officers," Research Report 1831, February 2005. Elaine M. Raybourn, *Training System Approaches for Honing Adaptive Thinking, Cultural Awareness and Metacognitive Agility*, brief presented at Adaptability Symposium 2007, December 2007. Richard Meinhart, *Strategic Thinking within the Context of Adaptability*, brief presented at Adaptability Symposium 2007, Alexandria, VA, December 2007. Maren Leed (principal author) and David Sokolow (contributing author), *The Ingenuity Gap, Officer Management for the 21st Century*, Center for Strategic and International Studies, Washington, DC, January 2010. Robert J. Sternberg, George B. Forsythe, Jennifer Hedlund, Joseph A. Horvath, Richard K. Wagner, Wendy M. Williams, Scott A. Snook, and Elena L. Grigorenko, *Practical Intelligence in Everyday Life*, (Cambridge, UK: Cambridge University Press), 2000.

Services to develop the attributes of character and resilience that are foundational to adaptable performance.

In summary, our continuing research indicates that the IDA model appears to meet the original goal of providing a parsimonious approach to capturing adaptability as described by a variety of researchers in the academic world, an approach that would have practical meaning for implementation of learning initiatives within the DOD learning establishment.

D. What is Not the Same as Adaptability

Two terms frequently used interchangeably in conversation with the word adaptability are agility and flexibility. Both agility and flexibility are valuable qualities for military individuals and units, but they are not the same as adaptability. A discussion based on the dictionary definition of the two words will help to clarify the differences. The following is based on definitions contained in the American Heritage Dictionary of the English Language.[21]

Physical, agility is "characterized by quickness, lightness, and ease of movement." To be agile is to be "nimble." Mental agility refers to quickness of mind—the ability to shift frames of reference or grasp a new idea. In both senses, agility may contribute to adaptability, but it remains something much less comprehensive than adaptability. Units may achieve success because they are able to maneuver quickly or rapidly bring additional capabilities to bear on a given situation, and individuals may benefit from being able to see a new idea or gain a new understanding quickly. However, neither of these is the same as being able to produce an effective response to an altered situation. With agility, the emphasis is on quickness—action in a very short period of time. Adaptability is concerned with responding effectively, often in situations marked by complexity and unpredictability. That response may be quick or may evolve over an extended period of time. Effectiveness, not speed of response, is the key measure.

Flexibility, in a physical sense, means "pliable" or "capable of being bent repeatedly without injury or damage." This is not pertinent to adaptability as a human capacity or skill. In terms of human response, flexibility indicates being "susceptible to influence or persuasion; tractable." Being susceptible to influence or persuasion may or may not be a good thing, depending on the circumstances; but it says nothing about one's ability to respond effectively to an altered situation. Another dictionary definition of flexible uses the word adaptable: "Responsive to change; adaptable: a flexible schedule." However, this simply indicates a pre-existing condition established to respond to anticipated changes. There may be new, or different, or changing requirements, but they have been

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[21] *The American Heritage Dictionary of the English Language, 4th Edition*, Boston: Houghton Mifflin Company, 2000.

anticipated. The basic situation has not been altered. Again, adaptability as an important military capability should be understood as the human capacity to respond effectively to an altered situation—an entirely different situation than that to which one is accustomed or which one has anticipated.

Agility and flexibility are attributes that in certain military situations have great value and, in fact, can contribute to adaptive performance. They are not, however, synonymous with the comprehensive definition of adaptability depicted in the IDA model. In fact, it is because of the comprehensive nature and synergistic effect of the components of adaptability, depicted in the IDA model, that we consider adaptability an essential meta-skill, which allows individuals, units, and commander/leader teams to leverage all other essential skills.

3. Becoming Adaptable

Adaptability learning is a function of education and experience, as well as training.[22] In fact, it is probable that experience and education are more influential than training in enhancing adaptability for two reasons. First, individuals devote relatively less time to training than they do to formal schooling and self education or, especially, to doing an actual job—operational employment in the case of the military. Second, because of the way that brain functioning affects learning, experience and education tend to produce a more indelible contribution to adaptable thinking than training by itself. Underpinning this assertion are theories of experiential and adult learning.[23] The relative influence of each sphere in nurturing adaptability implies that it is likely that assignment patterns and exposure to opposing views, gray areas, and foreign cultures through liberal education and travel are at least as, if not more important than even purpose-designed adaptability training.

Thus, while we have focused on training, we recognize that the most effective adaptability training will be that which is complemented by adaptability education. Critical thinking skills, communication skills, cultural understanding and awareness, understanding human behavior, and knowledge of government, world affairs and advances in science and technology are all essential to the development of adaptable individuals and teams. The military can provide this education at the Service Academies and civilian graduate schools and through professional military education (PME) throughout a career. Education and training should be mutually reinforcing. Where possible, they should be integrated. The Adaptive Thinking Leader (ATL) course at the Army's Special Warfare Center and School, with its cadre of military personnel and academic specialists and a blend of classroom education and field training, is an example of the blending of training and education.

Lieutenant General Sir John Kiszely, former Director of the Defence Academy of the United Kingdom, has, with great insight, addressed the need to take a long-term perspective in assessing the efforts to prepare military leaders to adapt to novel situations.

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[22] The authors acknowledge ongoing debates about the relationship between training and education. Because the military makes a distinction between training programs and educational programs, we simply accept that both are vehicles for learning and that there is an overlap between the two.

[23] See for example Daniel J. Siegle, *The Developing Mind* (New York: Guilford Press, 1999) and Stanley I. Greenspan and Stuart G. Shanker, *The First Idea* (Cambridge, MA: Perseus Books Group, 2004).

In a monograph for *The Shrivenham Papers*, he adroitly relates training and education in the development of adaptability:

> All training and doctrine needs to be founded on education. If they are not, the practitioner is liable to lack the versatility and flexibility needed to adapt them to changing circumstances or to extemporize…This is particularly applicable in the fluid, unpredictable, 'messy' operations which characterize post-modern warfare…Moreover, adaptability by itself is inadequate; we must also possess the understanding (resulting from education) which will enable us to anticipate change…It is important to recognize the purpose of this education. Its purpose is not the purist one of the pursuit of knowledge for its own sake, but of developing capacity for good judgment. Such education, therefore, has a training dimension in that it is preparing practitioners to exercise good judgment in their profession, but not just in their next job or deployment, but over the duration of their career. Thus, its payback should not be judged by the improvement to an individual's immediate performance, but by the value it adds to performance over the course of a career, and in the value added to the organization as a whole over a similar time-span.[24]

The U.S. Army has explicitly stated that with regard to the contribution of operational experience to developing adaptability, everyday operations, across the range of military operations (ROMO),[25] are where most learning takes place and where the greatest potential for learning exists:

> …the Army must intensify learning in operational assignments, including a focus on increasing awareness of experiential learning and taking advantage of and documenting learning that takes place naturally throughout the workday. Army surveys have consistently shown that the best opportunities for leader-development occur in the context of the real duties performed by leaders.[26]

Exploiting those opportunities for learning and leadership development requires purposeful feedback. Feedback can come through a variety of methods—after action reviews, mentoring and counseling, or simply guided reflection on lessons learned. Experience that leads to repetition of bad or ineffective practices will not produce learning. The implications are clear. Efforts to increase adaptability will benefit from recognition of the role that operational experience plays, recognition of the value of varying that experience, and recognition of the contribution made by leaders who strive

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[24] John Kiszely, "Post-Modern Challenges for Modern Warriors," *The Shrivenham Papers-Number 5,* Defence Academy of the United Kingdom, December 2007, 15.

[25] For a discussion of the ROMO and categories of military activity. See Department of Defense, *Capstone Concept for Joint Operations, Version 2.0,* August 2005, 10 and Department of Defense, *Capstone Concept for Joint Operations, Version 3.0,* August 2005, 14 ff.

[26] U.S. Army, "The U.S. Army Concept for the Human Dimension in Full Spectrum Operations—2015-2024, TRADOC Pamphlet 525-3-7," June 11, 2008, 31.

to turn the events of everyday operations into explicit training and learning experiences by routinely providing various means of focused feedback.

Teams, units, and, particularly, individuals will become more adaptable to the extent they are afforded the breadth and depth of experience necessary to foster the development of adaptability skills. Training and education are part of a process of spiral development, and the robustness of that spiral is entirely dependent upon the real-world experience of those being trained. A narrow career path will constrain what can be learned in a training and education environment, because the foundation for learning will be limited. Therefore, to be effective, adaptability training must be built upon and reinforced over an entire career, must be complemented by education that enhances adaptability, must be accomplished in the context of assignments that broaden one's perspectives, and must expose those being trained to the range of operations they may experience.

While adaptability is enhanced by training, education, and experience, it seems likely that the greatest adaptability learning will occur in those situations where adaptability learning in one sphere (training, education, or experience) is reinforced by similar learning in both of the other spheres. For example, a unit preparing for deployment to a combat zone might include multiple "crucible experience" training events reflecting the variety encompassed by the ROMO in the projected joint operating environment (JOE).[27] Ideally, the previous PME of many of the officers and non-commissioned officers (NCOs) in the unit would have included academic exposure to the area of deployment; and some of them would have had previous experience there. Successful completion of each exercise would not be based on the achievement of some predetermined result. Instead, it would depend on the effective employment of professional skills, critical and creative thinking skills enhanced during PME, sound decision making, and the display of a wide range of relational skills, including cross-cultural skills, resulting in effective responses to altered situations. Skilled trainers would ensure that the individuals, commander/leader teams (CLTs) and units at every level gain a greater sense of the complexity of the environment and the range of solution sets possible, as well as the confidence they need to be successful as a result of the training. Then the deployment itself would become a validation and continuation of the training. Figure 3 illustrates this situation, the natural overlap between education and training (learning), and the fact that both are a subset of experience in general.

[27] See U.S. Joint Forces Command, *Joint Operating Environment (JOE)*, November 25, 2008.

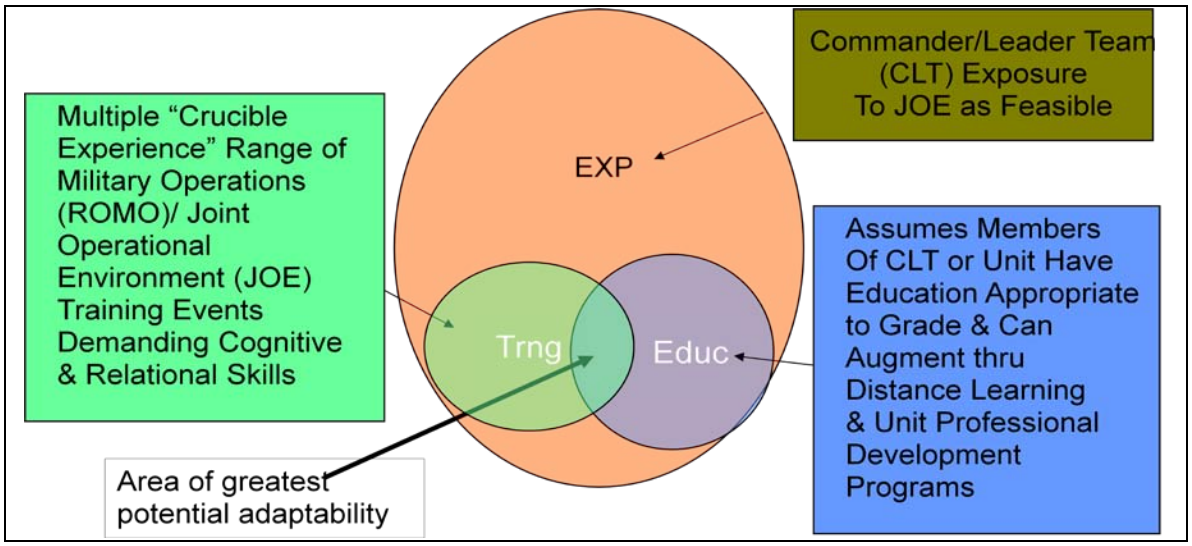

Figure 3. Experience, Education, and Training Together Foster Team/Unit Adaptability

Similarly, an individual's professional education, preparation for assignments, and actual operational experience are integrated to build the adaptive skills necessary to succeed in the JOE. An individual participating in pre-deployment training as a member of a unit, staff, or team, should be exposed to multiple crucible experience training events across the ROMO, in the same manner as the hypothetical unit described above. The same individual would achieve enhanced adaptability as a result of being exposed to numerous crucible experiences through a succession of deployments and operations during a career. Crucible experiences associated with assignments that require taking on new responsibilities outside one's comfort zone are likely to be most important. Each crucible experience would require the individual to draw upon component aspects of adaptability training and education acquired in a variety of venues. Beginning with undergraduate education and continuing throughout all phases of military professional education, the individual would be coached in critical and creative thinking as a fundamental aspect of every course. Developing communication skills, both speaking and writing, would be stressed in every academic setting. The individual would be taught how to study and appreciate a different culture and would gain familiarity with specific cultures. Some individuals, depending on aptitude and interest, would become experts in particular languages and related cultures. The individual, when eligible, would attend appropriate level war college courses that would incorporate relevant aspects of adaptability learning.

In preparation for and during each operational assignment, the individual would receive training in the professional skills required for his or her assignments. Repeated application of these skills in varying scenarios would help the individual develop the intuition needed to support rapid decision making in a rapidly changing and unpredictable environment. Training would be structured to require the individual to practice team social and leadership skills, including influence, negotiation, and persuasion. Training

would include inter-cultural interaction, in terms of both non-military U.S. entities and foreign military and civilian organizations. Training would also challenge the individual's ability to apply critical and creative thinking skills within his or her domain of expertise.

The individual would gain increasing self-awareness and an ability to self-regulate through a variety of assessments and the coaching and mentoring of seniors or others with relevant experience. As with unit adaptability training, success would be determined not in terms of a predetermined outcome, but by evaluation of the effectiveness of responses to changing situations.

Beyond the formal training experiences, the individual would gain a continually increasing appreciation for the challenges he or she may face and a broader perspective of those challenges through self-education that builds on formal education. Most importantly, the individual would be given a broad range of assignments to allow him or her to develop knowledge and skills through experience in venues representative of the ROMO. The individual would be given assignments with both increasing responsibility commensurate with increasing rank and responsibilities of a wide range that require moving beyond one's comfort zone in terms of the nature of the work and the circumstances under which the work is performed. Successive assignments that expose the individual to training that includes crucible experiences and that draws upon previous training, education, and experience will produce a progressively more adaptive individual. Figure 4 illustrates the convergence of training, education, and experience in the development of adaptive individuals.

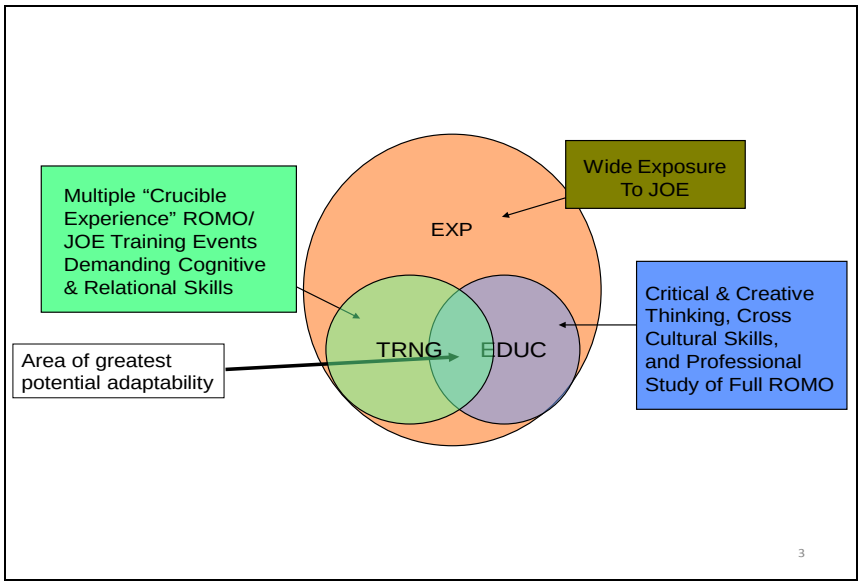

Figure 4. Experience, Education, and Training Together Foster Individual Adaptability

Consistent with the idea that adaptability depends on education and experience as well as training, there can be no such thing as an adaptability "inoculation." One cannot

take a short course on adaptability or go through one series of adaptability exercises in order to achieve adaptability. As observed by a noted industrial-organizational psychologist: "Developing adaptive capabilities entails a long-term process that provides trainees with extensive guided experience."[28] One can only become progressively more adaptable, and becoming more adaptable requires broad experience, continuing education, and training at every level and in every relevant operational venue. Education, training, and experience that would make a young leader more adaptable in a tactical, small unit situation would need to be built upon and continually reinforced in order to make that same leader more adaptable as a senior officer facing operational or strategic challenges. This is a particularly important concept in the effort to develop more adaptive individuals, teams, and units at every level.[29]

Fundamental to developing the meta-skill of adaptability is the recognition that it must be considered in the context of a particular set of basic skills. In other words, adaptability is "domain specific."[30] Adaptive performance is the result of applying the meta-skill of adaptability in the context of foundational knowledge and skills peculiar to a profession or other occupation. The military domain, in the broadest sense, is the ROMO in the JOE. Therefore, in order to become more adaptable, military individuals, leader teams, and units, must develop basic professional skills and then learn to apply them effectively in operations ranging from high intensity conflict to counterinsurgency operations to humanitarian assistance, while operating in an environment characterized by globalization, unpredictability, and asymmetric threats to security.

Because adaptability is domain specific, adaptability training must be tailored to specific audience requirements. Adaptability training for the military must be conducted in the context of the ROMO, but it must also take into account the basic professional skills of the training audience and the environment in which that audience operates. This means recognizing the roles and missions of the Services. Adaptability training for the Army and Marine Corps will not be the same as for the Navy or Air Force, although it will be based on the same principles. Similarly, training for tactical adaptability will be different from training for the operational and strategic adaptability required of more senior officers and in higher level headquarters.

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[28] S. W. J. Kozlowski, "Training and Developing Adaptive Teams: Theory, Principles, and Research" in *Making Decisions Under Stress: Implications for Individual and Team Training*, ed, J. A. Cannon-Bowers and E. Salas, (Washington, DC: American Psychological Association, 1998), 120.

[29] The Army is addressing the training and education required to be able to adapt to the range of challenges it expects to face in the coming years and is considering pushing strategic thinking education to lower levels in its leader development program. Kate Brannen, "U.S. Army Lists War-Fighting Challenges," *Defense News*, May 10, 2010.

[30] Army Research Institute for the Behavioral and Social Sciences, *Training Adaptable Leaders: Lessons from Research and Practice*, Research Report 1844, October 2005, 7.

While there is a consensus among the experts that the functional adaptability[31] required to contend with a complex operational environment is domain specific,[32] it should also be recognized that certain elements of adaptability have universal applicability. In particular, self-awareness, some relational skills, and habits of critical thinking appear to be relevant in every domain. On the other hand, intuition, which is defined as the way we translate our experience into action, is clearly domain dependent. Experience that allows one to make judgments and decisions in one domain will not necessarily be relevant in another domain.

From this discussion, it can be seen that becoming more adaptable requires recognizing the complex relation of adaptability skills and blending the development of those skills with the development of readily recognized domain-specific skills. Thus, to have the desired impact, the limited time spent in training must be intentionally focused, well-structured, and effectively executed. Training designed to inculcate specific tactics, techniques and procedures remains as important as ever, but must also be structured to enhance the meta-skill of adaptability.

Adaptability performance is also a function not only of the teachable and trainable adaptability skills depicted in the IDA model, but also of individual predispositions and organizational openness. Though neuroscience recognizes adaptability as a core function of the brain and neural systems, not everyone has the same aptitude for the meta-skill of adaptability any more than everyone has the same aptitude for language or music. An Army Research Institute for the Behavioral and Social Sciences (ARI) study supported this thesis when it identified specific personality traits related to adaptability. Traits the study identified included self-efficacy, resiliency, openness, achievement motivation, tolerance of ambiguity, and a willingness to learn.[33] Tolerance of ambiguity, a trait not generally emphasized or even appreciated in military training and education, may be the most reliable indicator of an aptitude for adaptability.[34]

Our underlying hypothesis is not that everyone can reach the same high level of performance with regard to adaptability, but that individuals, leader teams, and units can,

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[31] Functional adaptability links the four IDA components to performance or action.

[32] Army Research Institute for the Behavioral and Social Sciences, "Developing Adaptive Proficiency in Special Forces Officers," Research Report 1831, February 2005, 4. James W. Lussier and Scott B. Shadrick, Adaptive Thinking Training For Tactical Leaders, Paper presented at the RTO HFM Symposium on "Advanced Technologies for Military Training," Genoa, Italy, 13-15 October 2003. 2, 10. Rose A. Mueller-Hanson, Johnathan K. Nelson, and Erin Swartout, "Proof of Concept Research for Developing Adaptive Performance: Task 2 Report, Validation Plan," July 2009 (PDRI: Arlington, VA) 13.

[33] Army Research Institute for the Behavioral and Social Sciences, "Training Adaptable Leaders: Lessons from Research and Practice," Research Report 1844, (October 2005), 4-5.

[34] Anne-Marie Grisogono, *The Science of Complex Adaptive Systems and Applications to Defense Systems and Operations,* Complex Adaptive Decision Making Conference, Alexandria, VA, 18-19 June 2009.

through training, become more adaptable than they otherwise would be. At the same time, regardless of individual aptitudes and personalities, the extent to which individuals, teams, or units perform adaptively will be highly influenced by the degree to which the organization in which they are functioning is receptive to critical and creative thinking, is willing to take risks, and is tolerant of mistakes. In other words, a culture of adaptability begets adaptability.

Becoming more adaptable—the development of greater adaptability—should be understood as a long-term process. Without sustained commitment to that process, attaining more adaptable performance will continue to be problematic—at best, a matter of chance in an environment characterized by the increasing pace of change. With a sustained commitment to the process, leaders a generation from now will be prepared to respond more adaptively at every level—tactical, operational, and strategic; and the most dramatic examples of adaptive behavior will be the effective response of the most senior leaders to changes in the strategic environment that junior leaders today cannot imagine and no one can predict.

4. The Training Audience

Although adaptability is often discussed as a tactical skill—the ability of a young officer or NCO to react to a novel situation under stressful and time-sensitive conditions, adaptability is just as necessary at much higher levels and in situations where more time is available to respond to a changed situation, more extensive critical and creative thinking is required to develop an effective response, and more complex relational skills are required to coordinate an effective response. At the operational level, conditions in a theater may require adapting a campaign plan. At an even higher level, changes in the overall security environment may call for a change in strategy and force structure.

The need for strategic adaptability—the need to be able to think strategically in the face of change and uncertainty—was highlighted in the testimony of historian Williamson Murray before the Congress last year:

> Strategy is, after all, dynamic. It must take into account changing realities and circumstances…producing a mind that is able to grasp the strategic level of war requires the transition to a broader understanding of conflict from [officers'] earlier conditioning…Improving the analytic capabilities of officers and teaching them how to deal "with uncertainty and ambiguity" should begin before commissioning and be pursued concurrently with training throughout the whole professional development process.[35]

It should be noted that Professor Murray's testimony emphasizes the importance of teaching undergraduates analytical skills and how to deal with uncertainty and ambiguity. Also implied is the need to develop critical thinking skills. The Service Academies owe it to future leaders to take Professor Murray's recommendations to heart.

Our research has identified various levels of adaptation within the military domain, and the IDA concept calls for continually developing the meta-skill of adaptability throughout a career and at every level of military organization. This idea is reflected in the adaptability learning concept depicted in Figure 5.

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[35] Williamson Murray, Testimony, House Armed Services Committee, Subcommittee on Professional Military Education, September 10, 2009.

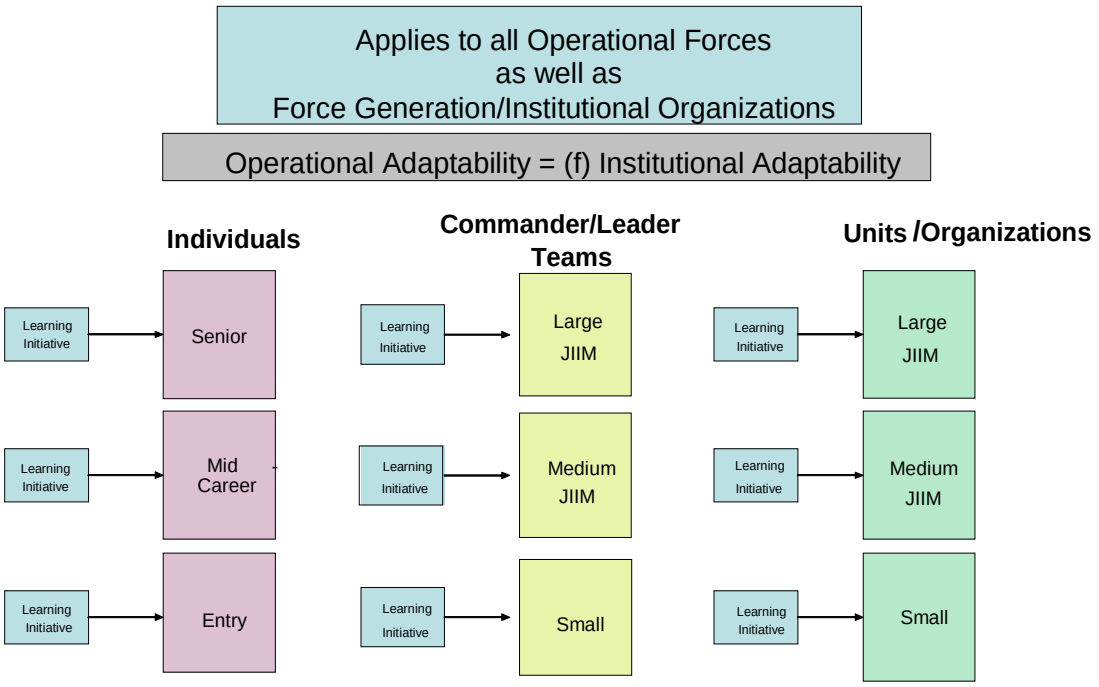

Figure 5. IDA Adaptability Learning Concept

However, adaptability is not equally essential to all individuals and units. Special Operations Forces are required to be particularly adaptable, and that is why the Army's one major effort at training adaptability was undertaken at the Army's Special Warfare Center and School. Individuals in occupational fields that rely more on standardized procedures and routines will probably require less adaptability training. Those working as aircraft mechanics or nuclear reactor operators are probably good examples of the latter. Even where adaptability is an acknowledged requirement, job-required adaptability profiles vary significantly.[36] Thus, where to focus adaptability training and what aspects of adaptability to emphasize for a particular audience are challenging questions that must be addressed when considering the introduction of adaptability training throughout DOD and the need to identify where scarce training resources can best be applied, especially in the near term.

A perverse corollary to the idea that not everyone benefits equally from adaptability training has been our finding that some leaders feel that no one would derive significant benefit from purpose-designed adaptability training, at least not enough to justify the effort. While our original study showed that the DOD leadership recognized the critical

[36] E.D. Pulakos, S. Arad, M.A. Donovan, and K.E. Plamondon, "Adaptability in the Workplace: Development of a Taxonomy of Adaptive Performance," *Journal of Applied Psychology* 85, no. 4 (August 2000): 612-624.

importance of developing adaptable leaders,[37] there is no consensus across the Services, particularly in the more senior ranks, with regard to the need to develop individuals, leader teams, and units that are more adaptable than they already are. Many leaders are of the opinion that they and those with whom they work are as adaptable as they need to be; that a normal career pattern, with traditional training, produces sufficient adaptability; and, therefore, there is no need to be concerned with developing greater adaptability. Specifically, they contend that although there is currently no purpose-designed adaptability training, existing training develops adaptability as a by-product. From this perspective, the question no longer is who should receive adaptability training and how should the training be accomplished, but why devote scarce resources to purpose-designed adaptability training for anyone?

Nonetheless, much of the military's senior leadership recognizes the need to prepare an adaptable force. The former senior commander in Afghanistan, General Stanley McChrystal, commented in an interview: "The education of our forces is the best weapon we have. …success is dependent on a fighting force that can recognize changes and adapt to them."[38] The Chairman of the Joint Chiefs of Staff, Admiral Mike Mullen, writing in his foreword to the *Capstone Concept for Joint Operations*, states:

> The *Capstone Concept for Joint Operations* describes how the joint force will operate in an uncertain, complex, and changing future characterized by persistent conflict…To succeed, we need adaptive and thinking professionals who understand the capabilities their Service brings to joint operations and how to apply those capabilities in a flexible manner.[39]

The document goes on to state that "the institutional implications of adopting the concept include Develop[ing] innovative and adaptive leaders down to the lowest levels… [and] Improv[ing] Service and institutional adaptability to deal with rapid change.[40]

The salient issue for the military today is not just change, but the rapid pace of change. The challenge for military training is to demonstrate that the time required to develop the skills and habits of mind necessary for adaptive performance in the face of rapid and unpredictable change can be significantly compressed. With no additional effort, the military will continue to adapt. But history has shown that with no additional effort the rate at which it adapts will be slow and costly. One analysis indicated that historically the U.S. military has taken three years to adapt its doctrine to the realities of a

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[37] John Tillson et al., *Learning to Adapt to Asymmetric Threats*, October 2005.

[38] Thom Shanker quoting Gen. Stanley A. McChrystal, "New Army Handbook Teaches Afghanistan Lessons," *New York Times*, August 13, 2009.

[39] Department of Defense, *Capstone Concept for Joint Operations, Version 3.0,* 15 January 2009, iv- v.

[40] Ibid., 28.

new war.[41] One could argue that it has taken longer than three years in Iraq and Afghanistan. The military will be much more effective and much better prepared to respond in a timely manner to the challenges it faces if its people—including leaders at every level—become increasingly more adaptable. There is, indeed, a need, as the *Capstone Concept for Joint Operations* says, to "develop innovative and adaptive leaders down to the lowest levels."

So who comprises the adaptability training audience? One can start with the broad category of "leaders at every level." An obvious group are all those being trained to be the nation's military leaders at West Point, Annapolis, Colorado Springs, and in the Reserve Officer Training Corps (ROTC) programs in universities across the country. Critical and creative thinking, self-awareness, and a broad range of relational skills should be a central part of curricula in ways they are not today. Development of the same skills should be an equally important part of programs of study in graduate school and at the war colleges. The educational theory to support such learning should also inform the teaching that goes on in all leadership courses for both officers and non-commissioned officers—CAPSTONE and PINNACLE courses included.

On a team and unit basis, adaptability training should be integrated into warfare training and exercises at every level, from small unit training to major joint exercises. Trainees should be exposed to crucible events at every opportunity. According to researchers James W. Lussier and Scott B. Shadrick, "…observations of officers in realistic tactical performances indicate that they typically do not perform according to [expert tactical thinking behaviors]; the more intense the exercise, the less likely are the officers to exhibit these behaviors."[42] The goal should be to teach basic tactics, techniques and procedures while simultaneously varying the scenarios to challenge those being trained with unfamiliar situations that take them out of their comfort zones.

The need to provide leaders training experience in intense and stressful situations can be inferred from the research of others as well:

> A more recent situational model is cognitive resource theory (Fiedler, 1986; Fiedler & Garcia, 1987). The theory proposes that certain conditions (e.g., stress) alter the relationship between cognitive resources, such as intelligence and experience, and outcomes such as group performance. In testing this model, Fiedler (1995) found that intelligence is positively correlated with leadership success under conditions of low stress but that it is negatively correlated with success under conditions of high stress. Furthermore, the relationship between experience and leadership

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[41] Jim Lacey and LTC Kevin Woods, "Adapt or Die," *U.S. Naval Institute Proceedings*, August 2007, 16-20.

[42] Lussier and Shadrick, 5.

> performance is greater under conditions of high stress than under conditions of low stress.[43]

Exercises that require unit leaders to respond under pressure in a variety of scenarios will provide additional experience that will prepare them to respond more effectively under the pressure of changing conditions in real world situations.

Additional analysis will need to be done to determine more specifically which training and education environments will benefit most from the application of resources devoted to adaptability learning. There are undoubtedly many technical training schools and programs where adaptability training would be of very limited value. However, it seems apparent from the requirements articulated by senior leaders that the adaptability training audience includes leaders at every level and those engaged in operational exercises across the ROMO. To defer engaging those audiences is to defer realizing success bred of adaptable performance as called for by General McChrystal and Admiral Mullen. As a former Commandant of the Army War College has noted: "The greatest failures in our current wars have been human and intellectual, not technological."[44]

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[43] Sternberg, et. al. 165.

[44] Robert H. Scales, "Scales response to Ricks Washington Post article," 22 April 2009. http://talk.collegeconfidential.com/service-academy-parents/703211-jack-wheeler-usma-66-response-washington-post-editorial.html.

5. Adaptability Training Validation

A. Introduction

As discussed earlier, while senior leaders often speak of the importance of adaptability, there has been a lack of scientific evidence to support the idea that adaptive performance could be enhanced by specific training interventions. In the limited amount of purpose-designed adaptability training previously conducted within DOD, there were anecdotal accounts but no metrics to demonstrate the efficacy of the training. Before articulating an adaptability training strategy or modifying training policy for the purposes of enhancing adaptable performance, the OUSD(P&R) considered it important to demonstrate that purpose-designed training can improve adaptable performance. OUSD(P&R) sought to establish a scientific foundation for aggressively pursuing such training efforts in the future. This adaptability training validation would be the basis for an adaptability training strategy and any related changes in training policy.

IDA was tasked by OUSD(P&R) to assist a contractor with the requisite scientific credentials in conducting such a training validation, to report the findings of the validation, and to make recommendations for an adaptability training strategy and related policy initiatives based on the outcome of the validation. Accordingly, IDA, having previous identified the essential elements of a training validation, assisted the contractor in identifying appropriate training audiences, participated on the panel that reviewed the contractor's design of the validation, and observed the conduct of the training validation at both of the chosen venues.

OUSD(P&R) contracted with PDRI, a consulting firm in the field of industrial-organizational psychology, to design and conduct the adaptability training validation. PDRI had previously worked with ARI to develop adaptability training for the U.S. Army John F. Kennedy Special Warfare Center and School, but this work had stopped short of implementing metrics to demonstrate the efficacy of the training. Specifically, OUSD(P&R) tasked PDRI to:

- Task 1: Review the adaptability requirements and training programs of a select group of military target populations to evaluate the suitability of these populations for inclusion in the training validation.
- Task 2: Develop a detailed plan for conducting the adaptability training validation with the selected target population and thoroughly vet this plan with project stakeholders and external subject matter experts.

- Task 3: Develop a domain-specific adaptability training intervention for the target population and develop reliable and valid criterion measures (metrics) to evaluate adaptive performance.
- Task 4: Conduct the adaptability training validation using a comparison group to isolate the impact of the intervention from other events. Communicate the results in a clear and compelling way that gives stakeholders information necessary to promulgate adaptability training in the Services.[45]

B. The Training Validation Audience

Five training populations were visited and evaluated for their suitability for the study. The primary focus of the evaluation was the nature of the groups being trained (general purpose forces were desired, rather than personnel with specifically identified aptitudes) and the ability and willingness of the training organization to support the study. Based on the evaluation, two groups were selected: Military Transition Teams being trained at Ft. Riley, KS and new Marine Corps officers being trained at The Basic School at Quantico, VA.

C. Design of the Training Validation[46]

In designing the training validation, PDRI developed a model of adaptive performance that "defines the construct of adaptability and the processes (and thus behaviors) required for adaptive performance."[47] The model is based on previous studies that developed a taxonomy of adaptive performance that "was investigated empirically via the development and administration of a Job Adaptability Inventory—an instrument designed to describe the adaptability requirements of jobs."[48] The model addresses:

- Individual differences that are considered relevant to adaptive performance—cognitive abilities (working memory capacity, cognitive complexity), personality (tolerance of ambiguity, openness to experience, achievement motivation, flexibility, resiliency), and experience.
- The knowledge, skills, abilities, and other characteristics that affect one's ability to perform adaptively—foundational skills (metacognition, self-awareness,

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45 Rose A. Mueller-Hanson, Johnathan K. Nelson, and Erin Swartout, "Proof of Concept Research for Developing Adaptive Performance: Task 2 Report, Validation Plan," July 2009 (PDRI: Arlington, VA) 2.

46 Ibid., 3-31. This section is a brief synopsis of the description contained in PDRI's Task 2 Report.

47 Rose A. Mueller-Hanson, Johnathan K. Nelson, Erin Swartout, and Hannah Foldes "Proof of Concept Research for Developing Adaptive Performance: Task 4 Report, Study results," January 2010 (PDRI: Arlington, VA) 3. (draft)

48 Rose A. Mueller-Hanson et al., "Proof of Concept Research for Developing Adaptive Performance: Task 2 Report," 7.

emotional regulation), cognitive skills (frame-changing, problem solving/decision-making, critical thinking), relational skills (communications, perspective taking, cultural awareness, social awareness), motivation and attitude (efficacy beliefs, willingness to learn), and physical skills.

- Adaptive processes essential to adaptive performance—goal setting, environmental scanning, diagnosing change, developing strategies for change, evaluating and selecting strategies, implementing change, and evaluating and monitoring change.
- Dimensions of adaptability which define adaptive performance outcomes: cognitive adaptability, interpersonal adaptability, physical adaptability, and leader adaptability.[49]

Specifically, the model takes into account PDRI's initial research that "…highlighted two particularly important points, namely that 1) adaptive performance is a multidimensional construct, and 2) individual jobs or organizational roles have unique profiles of adaptability requirements."[50] In other words and as discussed earlier, adaptability is domain specific, and interventions to increase adaptability need to match specific adaptability requirements.

PDRI's experiment design specified the required supporting infrastructure:

- High quality instructors
- Support from leadership
- Buy-in from instructors
- Training for instructors in how to implement the program
- Job aids and other instructional guidance to reinforce the program and ensure that it is implemented consistently
- A regular monitoring and feedback system to ensure training continues to occur and quality standards are maintained.[51]

PDRI established guiding principles and strategies for conducting the adaptability training:

- Mastery orientation: emphasis on building competence and expertise rather than achieving specific performance scores.
- Outcomes based approach: emphasis on achieving a positive outcome rather than simply following a rigid process.
- Error-based learning: allow students to make mistakes and learn from them.

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[49] Ibid., 5-27.

[50] Ibid., 8.

[51] Ibid., 28-29.

- Guided discovery: Students develop and test hypotheses about what they are learning; this active processing of information can lead to knowledge that is better integrated with existing knowledge.
- Emotional engagement: create dissonance (i.e., make explicit the gap between one's current level of adaptability and his or her desired level of adaptability) to motivate change, maximize perceived relevance of training content, and heighten physical arousal so that learning takes place.[52]

PDRI specified six elements that they included in their design and considered essential for an effective adaptability training program:

- Raise awareness and motivate students to learn.
- Provide foundational [adaptability] skills with an organizing framework to help students make sense of and learn from their experiences.
- Expose students to numerous, varied scenarios that include novel, unexpected challenges and provide minimal guidance to help them navigate these scenarios.
- Provide feedback and guidance specifically targeted at adaptive performance, and help students integrate feedback across varied components to derive the underlying problem structures. An iterative process of practice, feedback, and practice is a necessary part of development.
- Promote reflection to extract lessons learned to be applied in the future; focus explicitly on developing action plans for dealing more effectively with future situations.
- Allow continued practice to solidify skills, using varied scenarios to help students build their repertoire of experience.[53]

Taking into consideration these design elements, PDRI proposed to conduct the two training validations that would allow them to answer the following research questions:

- To what extent does the current training program already contribute to developing adaptive leaders and soldiers?
- Can adaptive performance be enhanced even further with additional interventions?
- To what extent will lessons learned from one population (MiTTs at Ft. Riley) transfer to other military contexts (USMC Officer Training at The Basic School.)?[54]

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[52] Ibid., 29-30.

[53] Ibid., 30-31.

[54] Ibid., 31.

In order to evaluate the effectiveness of the training, PDRI proposed to measure:

- Attitudes and beliefs about one's ability to perform in an adaptive fashion in the future (efficacy beliefs)
- Ability to apply the adaptive process to a situation requiring adaptive performance (adaptive process)
- Demonstration of effective behaviors in a situation requiring adaptive performance (performance)[55]

In short, PDRI proposed to validate the proposition that, by adhering to specific guiding principles and strategies and applying a specific methodology, a training program could produce students or trainees who are more adaptable than they would be without having had the training, and that it is possible to demonstrate the enhanced adaptability through scientifically acceptable metrics.

D. Conduct of the Training Validation

PDRI provided a succinct description and overview of how it conducted the training validation at Ft. Riley and Quantico. The authors of this paper periodically observed training, including staff discussions and instructor preparation, at each site:

> Samples were taken from two populations: the U.S. Army MiTT training program at Ft. Riley, Kansas, and the USMC Basic Officer Course (BOC) at Quantico, Virginia. The MiTT population included 47 transition teams with approximately 11 members each. The BOC population included 531 new Marine Corps Officers, divided into 32 squads.
>
> In each population, participants were assigned to either a control group or a study group. At the beginning of the study, participants in both the control and study groups took pre-tests which included background and personality assessments, a self-efficacy assessment (attitudes and beliefs about one's ability to perform in an adaptive fashion in the future), and measures of the participants' ability to apply adaptive thinking processes to a situation requiring adaptive performance (a situational judgment test (SJT) and a case study analysis test).[56]
>
> Participants in the control group then completed the training as usual. Participants in the study group participated in an adaptive performance training program in addition to their usual training. The adaptive performance training program included the following elements: an introduction to the importance of adaptability; foundational training in adaptive thinking processes and preliminary opportunities to practice these

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[55] Ibid., v.

[56] At Ft. Riley, a MITT situation based on actual experience was used in the pre-test case study and a fictitious civilian example was used in the post-test case study. At Quantico, only fictitious civilian examples were used.

> processes; techniques for increasing adaptive performance and practice applying these techniques using realistic case studies and video; and some reinforcement of adaptive processes through practice and feedback in existing exercises. At the conclusion of the training program, participants took post-tests, including the efficacy assessment, situational judgment test, and the case study analysis test. Behavioral performance data were gathered from instructors and in some cases peers. Participants in the study group were also asked for their reactions to the adaptive performance training program.[57]

E. Training Validation Results

At both Ft. Riley and Quantico, a statistical analysis of results revealed "some evidence for the opportunity to enhance adaptive performance with training."[58] Study measurements showed that both control groups and study groups at each training site increased their level of self-efficacy as a result of training. Thus, it was demonstrated that currently existing training increases at least one aspect of adaptive performance. But interventions designed specifically to enhance adaptive performance produced greater results. At Ft. Riley, "the study group performed better than the control groups in a key aspect of the assessment—the case study analysis test."[59] At Quantico, "The study group scored significantly higher than the control group on the SJT, and these differences were magnified after training."[60] The training produced no other significant differences between the study groups and the control groups. However, that a modest effort in terms of training time—seven to eight hours of classroom instruction over a period of several weeks—produced a measurable difference in adaptive performance seems significant. If a relatively small amount of training can produce a statistically significant improvement in adaptive performance, then one must consider the potential effect of conducting purpose-designed adaptability training on a continuing basis and as an integral part of training conducted for other purposes. However, the value of this training from a scientific perspective will remain conjectural until further research can demonstrate that adaptability training results in improved job performance, operational effectiveness, and force productivity.

F. Discussion of the Training Validation Process and Results

Although the results were modest, it is important that the training validation did demonstrate that purposeful interventions in training can increase adaptable performance.

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[57] Rose A. Mueller-Hanson, et al., "Proof of Concept Research for Developing Adaptive Performance: Task 4 Report," iii-iv. (Draft).

[58] Ibid., 54. The PDRI report provides full details of the Statistical Analysis.

[59] Ibid., 13.

[60] Ibid., 38.

This is important because of the hypothesis that led to the study: While individuals are innately adaptable, adaptive performance can be enhanced through purposeful interventions in training; however significant improvement in adaptability will not be achieved in a single training course, but will require a sustained effort, where training is supported by continuing education and broad experience over an extended period of time. This training validation provides evidence that supports the first part of that hypothesis—adaptive performance can be enhanced through purposeful interventions in training. Testing and validating the second part will require a disciplined research and development (R&D) effort entailing considerable ingenuity and will take years to accomplish.

At the same time, the training validation illustrated challenges to training adaptability, revealed lessons learned, and suggested ways to improve such training in the future. The following is based on our observations of the training validations and, especially, upon the observations of the PDRI team that conducted the validations:[61]

The two validation efforts were added to existing training programs, and the fact that they were not fully integrated produced a certain amount of resistance to the novelty of the training. For a number of reasons, this was less the case at Quantico than at Ft. Riley.

At Ft. Riley, all of the classroom training was conducted by civilians from PDRI or the Center for Creative Leadership. Having civilians train military personnel preparing for deployment to Afghanistan spawned initial skepticism, even resentment, which was difficult to overcome. In addition, the training cadre at Ft. Riley participated only minimally in the preparation for implementing the training exercises and, as a result, it was not possible to achieve the amount of training initially planned.

At Quantico, the training cadre aggressively took ownership of the training. PDRI's draft report noted that "To develop the Quantico version, staff from the Warfighting School worked collaboratively with PDRI staff to take the lecture materials and exercise templates from Ft. Riley and rework them with Marine Corps content and case studies."[62] All of the classroom training was conducted by the regular staff of Marine Corps officers. As a result, the students at Quantico tended to see the training as more useful and relevant than the students at Ft. Riley.

In addition, the adaptability training at Ft. Riley required adding training time at night and on the weekends. This was not well received and detracted from training effectiveness. At Quantico, the adaptability component was folded into training conducted during normal training time and was, thus, better received.

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[61] Ibid., 26-30, 50-57.

[62] Ibid., 35.

However, even at Quantico, adaptability training suffered from competition with training that required students to spend time preparing specific products that had to be handed in for formal assessment. In a pressure-packed environment where graded results determined whether the Marine Corps officers would successfully complete the course, not unexpectedly, exercises that students knew would not be graded received less attention. One student commented: "At times we were not able to completely grasp what was being taught because we were wrapped up with evaluated training."[63] In retrospect, including adaptive performance in the graded aspects of the training may have improved the adaptability training validation.

Basic principles of training adaptability include engaging fully those being trained through crucible events and reinforcing the training through repetition and feedback. With the large number of students and limited time, these principles were not fully realized in either venue. According to the draft report, the large class size was a particular challenge at Quantico: "the large number of students resulted in very large class sizes (sometimes 150 to 300 students), making interactive discussions difficult."[64] That this inability fully to engage the students was a weakness in the training was supported by feedback from students and instructors who indicated that "Classroom instruction is useful, but real value of the training comes from integrating techniques into discussion groups and exercises."[65] Additionally, "Students also noted the lack of individualized feedback on their assessments and suggested that more feedback on their test results would be valuable."[66]

PDRI observed among its lessons learned, "the need to focus more time and effort on training instructors to develop the expertise necessary to implement the program…"[67] Even among the best instructors, the idea of training adaptability as a specifically defined skill or capability is a new concept. The cognitive and relational aspects of adaptability can be readily explained, but instructors need time, instruction, and practice to understand and absorb their implications for training. Instructor training should include education with regard to both the training goals and the means of achieving those goals. Ideally, instructors would be involved in developing adaptability training and would be allowed to observe and experience adaptability training and to practice implementing it before being required to apply it in an actual training setting.

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63 Ibid., 49.

64 Ibid., 52.

65 Ibid.

66 Ibid.

67 Ibid., 55.

PDRI also observed "the need to integrate the training concepts seamlessly into existing programs rather than including them as 'add on components.'"[68] Adaptability is not a "stand-alone" capability. As discussed above, it is domain specific. As defined, adaptability is the capacity to apply domain specific knowledge, skills, and other attributes to respond effectively to a changed situation. To be effective, adaptability training should be integral to teaching basic tactics, techniques, and procedures and to scenario exercises conducted by units of every size and staffs at every level. This implies requirements for both expert training designers and expert trainers in order to incorporate adaptability training principles into routine training being conducted for more fundamental purposes.

An essential aspect of the training validation was the application of metrics to demonstrate the effects of purpose-designed adaptability training. Previous limited efforts at adaptability training in the military have resulted in only anecdotal evidence of its effectiveness. PDRI introduced "several assessment strategies, including attitudinal assessments, cognitive assessments, and performance assessments."[69] As discussed elsewhere, developing adaptability training is an adaptive process. The evolution of metrics is one aspect of that process. That PDRI has begun that process is considered both helpful and significant.

Students and instructors provided feedback that indicated ways the actual conduct of adaptability training might be improved. Suggested refinements included "developing more hands-on exercises and discussion groups, allowing more time for rich discussion, and including more individualized coaching and feedback."[70] These suggestions and others like them, some of which have been implemented in other venues, reinforce the idea that the development of adaptability training will be an evolutionary process; and they also reflect the interest of students and instructors in pursuing such training. This is one more example of the willingness of young people to adapt—to try new approaches in order to respond to new challenges. Because of the susceptibility of young people to adaptability learning, a failure to aggressively pursue opportunities and improved methodologies for teaching and training adaptability and adaptability-related skills should be viewed as forfeiting potential human capital assets and depriving the military of a much needed capability.

PDRI's adaptability training validations demonstrated that purpose-designed adaptability training can improve adaptable performance. The validations showed that a modest effort over several weeks will produce modest results. Those results suggest that if more significant advances in adaptability performance are sought, a sustained and

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[68] Ibid.

[69] Ibid.

[70] Ibid., 56.

continuing effort will be required. Even this supposition, however, requires further research, as does the proposition that enhanced adaptability in a training environment will translate to enhanced adaptability in an operational environment. The training validation also produced valuable lessons learned with regard to the methodologies of the training, the role of instructors, and establishment of the training environment. Thus, the results of the training validations provide support for further initiatives in adaptability training and inform the following IDA recommendations for an adaptability training strategy with a strong R&D component, as well as its recommendations for changes to training policy designed to enhance adaptable performance at all levels of the military.

6. Adaptability Training Strategy

A. Introduction

Achieving greater adaptability will require intentional action on a number of levels and over an extended period of time. Specifically, training in numerous venues will require purposeful interventions to enhance the military's existing training of tactics, techniques, and procedures (TTPs) by adding an adaptability component to provide trainees with the preparation necessary to enable them to better cope with unpredictable challenges and circumstances. Adaptability training for senior leaders and larger units will need to extend beyond the situational dynamics of TTPs and address the cognitive challenges posed by complex systems and relationships at the operational and strategic level. A DOD-wide effort to achieve the degree of adaptability demanded by the current and projected operating environments will require, therefore, a comprehensive, detailed, and well coordinated strategic effort, with the continuing support of senior leadership.

It is also important to recognize that adaptability learning is a function of education and experience, as well as training. While we have focused on training, the strategy recognizes the synergism created by supporting adaptability training with adaptability education. Critical thinking skills, communication skills, cultural understanding and awareness, understanding of human behavior, and knowledge of government, world affairs, and advances in science and technology are all essential to the development of adaptable individuals and teams.

In even broader terms, developing adaptability in individuals, teams, and units requires a culture of adaptability, including an environment of adaptability learning. The strategy aims to develop a culture of adaptability—a culture that promotes adaptability and its component skills not only through training and education, but through assignment policies, promotion practices, and its system of incentives. Perhaps at the most basic level, a culture of adaptability will be recognized more for rewarding initiative than for punishing errors or failures resulting from honest efforts to respond to unforeseen and complex challenges.

Based on the findings of this study, including the results of two adaptability training experiments, we have developed a comprehensive adaptability training strategy framework.[71] The strategy incorporates adaptability training into a comprehensive effort,

[71] The strategic framework outlined here is a combined reflection of the study's findings with regard to the requirements for developing the meta-skill of adaptability and the associated skills depicted in the IDA

throughout DOD, to enhance adaptability and, at the same time, makes it a component part of training that has other more fundamental purposes.

The strategic framework provided here includes an example of an adaptability development roadmap covering a period of ten years. Key to execution of the strategy and roadmap will be high level oversight in OSD by an advocate who is provided with the necessary authority and resources. Equally important will be realistic timelines with deadlines and accountability.

The strategy addresses four basic questions:

1. Who makes up the training audience?
2. What is the ultimate goal of the strategy; what does DOD seek to accomplish?
3. What are the essential elements of the strategy; how will DOD achieve greater adaptability?
4. What resources and means will DOD need to employ in carrying out the strategy?

In regard to the third point—the essential elements of the strategy, the strategy takes into account four major factors:

1. A set of overarching principles
2. Training the meta-skill of adaptability
3. Training the component skills of adaptability
4. Adaptability training that results from organizational culture

B. The Training Audience

As a practical matter, adaptability training should be focused to take into account limited resources and the fact that not every individual requires or would benefit from the same amount of adaptability training. The greatest benefit to the military will result from concentrating adaptability training efforts on those with the greatest potential need for adaptability and its component skills.

Much of the recent literature on adaptability in the military has resulted from the experience of young leaders in Iraq and Afghanistan. Their lives, the lives of their subordinates, and the success of their missions have often depended on their ability to adapt to a type of warfare, a cultural environment, and a range of missions for which their training had not explicitly prepared them. At the same time, the most senior leaders in the military have found themselves needing to adapt to a strategic environment much

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model, the lessons learned during the conduct of the adaptability training experiments, the judgment of the authors informed by decades of military service, as well as discussions with current and former officials in OSD with experience in efforts to bring about change within DOD.

different than that which characterized their formative years. This has significant implications in terms of operational and strategic planning and the associated development of force structure. A third group, Special Warfare personnel, is recruited and screened based on an aptitude for adaptability. Its training curriculum includes adaptive thinking and leadership. All of these groups would benefit from a strategy that enhanced efforts to develop their adaptability skills.

At the other end of the spectrum are airmen assigned to repair jet engines and sailors responsible for operating nuclear reactors, for whom it is not nearly as evident that the same requirements for adaptability training exist. In both cases, there is a premium on strict adherence to established procedures. However, junior officers responsible for the operation and maintenance of nuclear propulsion plants can hope to go on to command ships and Navy strike groups and to take on the full range of responsibilities of flag officers.

Thus, it is important to look at the requirements for adaptability training in terms of both individual jobs and likely career progression. Establishing a foundation for the meta-skill of adaptability may be an important factor in the professional development of individuals who do not have an immediate need for that skill. Also, whereas the meta-skill of adaptability itself may not be essential to a particular job, component skills of adaptability are important in every job. Critical thinking, self-awareness, and social skills have universal applicability. Developing and using those component skills will also be of great value in preparing for later jobs where the meta-skill itself is required.

Finally, while this strategy derives from and is focused on efforts to develop more adaptable military individuals, teams, and units, the ideas espoused have equal applicability to the civilian members of DOD. The department depends on the day-to-day teamwork of its uniformed and civilian personnel. To be successful in adapting to the changing operational environment, the two groups need to be prepared to work together to provide effective responses. In fact, the ability of individuals in the two groups to work together should be considered one aspect of adaptability and merits specific attention. Thus, where it is proposed that OSD, the Service Secretaries, and Agency heads adopt strategies and plans for developing adaptability, it should be understood that those strategies and plans should include civilians in leadership and managerial roles in the respective departments and agencies.

C. The Ultimate Goal of an Adaptability Training Strategy

The military seeks to insure that it has the capabilities and capacity to respond when called upon, across the ROMO. It must respond in an environment characterized by unpredictability, complexity, ambiguity, and volatility. Senior leaders throughout DOD have identified the need to be able to adapt to the uncertainties of the evolving world, but they have not established an integrated learning environment that meets this goal. The

ability to adapt—to respond effectively to altered situations in such an environment—requires preparation that specifically takes into account the dynamic nature of the environment, including the machinations of a thinking enemy. Enhancing the overall learning environment to meet these demands is a key challenge for the Department of Defense.

Adaptability should be viewed as an essential capability. The military's greatest asset is its people, and one of its most important capabilities is the capability of its people to adapt to unpredictable challenges—the capacity of its people to bring about an effective response to an altered situation. If adaptability is perceived as an essential military capability, an adaptability training strategy will have the goal of enhancing that capability and ensuring a high degree of readiness with regard to the capability.

Thus, the goal of an adaptability training strategy is to delineate the ends, ways, and means necessary for the establishment of a learning environment conducive to the development of more adaptable individuals, teams,[72] and units at every stage of their careers and at every level of military organization. The ultimate strategy objective is significantly improved adaptive performance by individuals, teams, units, other organizations, and the military as a whole. More adaptive individuals and units will perform more effectively in the myriad tactical situations they face in a complex operational environment. More adaptive staffs will produce campaign plans better designed to out maneuver an adaptive enemy. More adaptive senior leaders and military institutions[73] will be better prepared to visualize, design, and develop the strategies and force structures appropriate to existing and plausible future national security threats.

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[72] Examples of the variety of teams are provided in Army doctrine that describes both formal and informal teams: the traditional chain of command; chains of coordination directing joint, interagency, and multinational organizations; chains of functional support combining commanders and staff officers. U.S. Army, FM 6-22, *Army Leadership: Competent, Confident, and Agile*, October 2006, 3-9.

[73] This study has focused on developing the adaptability of individuals, commander/leader teams, and units. However, adaptability is also a function of the larger organizations and institutions to which individuals, CLTs and units belong. Organizations, made up of individuals, can either promote or constrain adaptive performance. Organizations and the individuals that occupy key positions in them are prepared with different degrees of adequacy or dysfunction to respond adaptively to new threats and challenges. For an excellent discussion of the organizational dimension of adaptability, see: Eliot A. Cohen and John Gooch, *Military Misfortunes, The Anatomy of Failure in War*, The Free Press, New York, 1990.

D. The Essential Elements of the Strategy: How DOD Will Achieve Greater Adaptability

Adaptability is developed, or limited, as a result of experience enhanced by education and training.[74] Individuals can become more adaptable than they would otherwise be as the result of intentional interventions—in training, in education, and in career development. A strategy for developing adaptability will employ a wide variety of interventions.

Because adaptability is a function of training, education, and experience, one can develop adaptability skills in each venue. As a corollary idea, any instance of failing to take advantage of the time and resources available to develop adaptability in each venue can be viewed as a lost opportunity, the waste of scarce resources, and a potential reduction in readiness. Whereas we recognize that the development of adaptability is only one purpose of education, training, and operational experience, and frequently a minor one, this strategy is designed to take maximum advantage of the opportunities to develop adaptability, where doing so will not detract from the achievement of other equally or perhaps even more important goals. The strategy addresses both substance and methodology.

1. Overarching Principles

a. A Sound Framework for Adaptability Learning Must Guide Adaptability Training

An earlier IDA study identified the essential basic elements for training adaptability:[75]

First, one of the central truths that applies to both individual and collective skills training is that repetition of the object skill with proper feedback is central to performance improvement. Feedback must accompany repetition to correct improper performance and to reinforce proper performance.

Second, research shows:

> …a positive link between experience in adaptive situations and adaptive performance…Gaining the same experience repeatedly [e.g., training the same task to the same standard] may not aid performance in a novel situation, and it may even hurt performance if the individual insists on approaching the situation from a particular mindset that might not be

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[74] For a more detailed discussion of the need for a holistic approach to developing a more adaptable military, see: William R. Burns, Jr. and Waldo D. Freeman, *Developing More Adaptable Individuals and Institutions*, IDA Paper P-4535 (Alexandria, VA: Institute for Defense Analyses, February 2010).

[75] Tillson, et al., *Learning to Adapt to Asymmetric Threats*, 41-42.

> appropriate. However, experiencing a variety of situations requiring adjustments to the environment does appear to aid in the adaptation process.[76]

Simply put, if the trainee is to learn to adapt, then training events must include situations requiring adaptation.

Third, and equally important, over time in a series of training events, the range of situations requiring adaptation should be as broad as possible consistent with the ROMO.

Fourth, each adaptive training event should present the training audience with a problem for which it has not planned and which is tailored to its specific needs.

Finally, training to adapt requires having a properly constructed event scenario, skilled trainers, and an adaptive and unpredictable enemy. Thus, developing adaptability requires that DOD train trainers to teach adaptability and, for much training, that the DOD create skilled Red Teams to provide unpredictable threats that will challenge individuals, teams, and units to adapt.

b. The Approach to Adaptability Training Must Be Comprehensive

Developing adaptability in individuals, teams, and units requires a culture of adaptability, including an environment of adaptability learning. Adaptability training will be most effective and most beneficial when it is incorporated into a comprehensive effort to enhance adaptability throughout DOD and when enhancing adaptability is a component part of training that has other more fundamental purposes. In a culture of adaptability, professors and instructors think adaptively and teach students and trainees to think adaptively. A culture of adaptability promotes adaptability and its component skills not only through training, but through education, assignment policies, promotion practices, and its system of incentives.

It is noteworthy that the Army Strategy clearly recognizes the importance of adaptability and the need to develop adaptability in a comprehensive and purposeful manner:

> Army training and leader development programs must prepare units and leaders to conduct Full Spectrum Operations across the five operational themes of Peacetime Military Engagement, Limited Intervention Operations (LIO), Peace Operations, Irregular Warfare and Major Combat Operations…Soldiers, leaders and units must be trained and developed to become broad and agile enough to quickly adapt their core skills as needed to function anywhere along the spectrum of conflict…The Army must also produce a steady flow of adaptive, competent, and broadly skilled leaders who can lead the execution of full spectrum operations, adapting their core

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[76] Army Research Institute (February 2005), 4.

> skills for directed missions across Operational Themes…Adaptation must occur through training in units, the Generating Force, professional education, operational assignments and experiences, and self-development.[77]

The Army strategy not only recognizes the importance of developing adaptability, but also the fact that the development occurs through operational experience, institutional learning, and self-development, as well as training. What is required is the purposeful integration of efforts in those various venues.

Adaptability learning requires persistent reinforcement. Therefore, as illustrated in Figure 5, Section IV, DOD should ensure that opportunities to acquire adaptability-related knowledge and skills are provided in all DOD learning venues and that adaptability learning initiatives are integrated with existing programs throughout a career and at every level of military organization. Individuals should have regular exposure to adaptability learning situations in both training and education environments; and unit deployment cycles and staff training schedules should factor in purpose-designed adaptability training for units and commander/leader teams on a regular basis. In particular, it must be recognized that training is required for senior as well as junior personnel, and must extend beyond Service-centric environments to the realm of Joint, Interagency, Intergovernmental, and Multi-National (JIIM) operations. To emphasize this point and maintain perspective, the more senior a staff is, the more complex are the problems it faces and the greater is the need and the challenge to provide it training that enhances adaptability. The process of continual learning is fundamental.

It is important to acknowledge that time for training and education is a scarce resource, particularly with today's high operational tempo. Much has been written about the need to balance training for combat insurgencies with training for conventional warfare. Frequently, there has been criticism that the military is losing proficiency in the basic skills required to engage in major combat operations against a near-peer enemy. The fact is that the military does not have the luxury of maintaining a high level of proficiency in just one type of warfare. The potential threats the military faces and the myriad tasks it may be called upon to perform require it to train in a large number of skills, including the meta-skill of adaptability. The only way it can train in all these skills is to insure, wherever possible, that individual training and exercise events include training in multiple skills, including the meta-skill of adaptability and the component skills associated with adaptability. Investing in the intelligent and imaginative design of training events will pay large dividends, both in terms of overall readiness and in readiness to cope with an uncertain and unpredictable operational environment.

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[77] U.S. Army, "The Army Strategy," August 22, 2008, 23-25.

Inculcating specific tactics, techniques and procedures remains as important as ever, but that training should be supplemented by training focused on the meta-skill of adaptability. Thus, many traditional training venues that focus on training for tasks to a specific standard will require enhancement in the form of adaptable scenarios, an educational element, and instructors prepared to challenge those being trained, as well as to assist them in understanding how to respond to novel situations.

c. Adaptability Training Should Be Recognized As Being Domain Specific

Adaptability must be considered in the context of a particular set of basic skills. In order to be adaptive as a pilot, one must be able to fly an airplane. To be adaptive as a submariner, one must be knowledgeable about submarine capabilities and limitations. In other words, adaptability is "domain specific." A combat arms community—infantry, tactical air, surface warfare, etc.—defines a domain. However, the military domain, in the broadest sense, is the range of military operations in the joint operating environment. Thus, in order to become more adaptable, military individuals, leader teams, and units, must both develop basic professional skills and also learn to apply the skills effectively in operations ranging from high intensity conflict to counterinsurgency operations to humanitarian assistance, while operating with joint and combined forces in an environment characterized by unpredictability.

The importance of developing basic professional skills cannot be overemphasized. Adaptability is not a substitute for expertise, nor can one expect to respond adaptively to new situations if he or she has not mastered foundational skills that must be applied in an innovative fashion. The high degree of professionalism in the U.S. military rests in large part on its mastery of tactics, techniques, and procedures and a readiness to perform essential tasks to established standards under specified conditions. Adaptability implies the capacity to apply those TTPs in an innovative manner to accomplish familiar tasks under new and unexpected conditions or to accomplish new tasks altogether.

U.S. military professionalism today is to be lauded, but not taken for granted—particularly in the development of adaptability. Basic professional skills are the essential foundation for adaptive performance. Expertise in fundamentals is a recognized aspect of certain military communities. Aviation, nuclear power, civil engineering, explosive ordnance disposal, and special warfare, are several examples of communities with recognized expertise. On the other hand, a recent internal Navy report quoted in the media documents a decline in professionalism and readiness within the Navy's surface force:

> [I]t appears that a significant portion of the surface force is lacking in [personal qualifications], and this in turn suggests that many of our ships' leaders are at worst not dedicated to training their sailors, or, more likely, simply are more tolerant of non-completion. Recent incident reports

wherein non-qualified watch standers made critical errors tend to provide further confirmation.[78]

Developing adaptability across the board requires that every community establish high standards and expertise in the skills that are peculiar to it. The Services should ensure that each of their communities maintains its training standards at a level that causes its members to command respect and that positions the community to operate effectively and adaptively in the Joint Operational Environment (JOE).

Recognizing that adaptability is domain specific also means recognizing that adaptability training must be tailored to the training audience. That audience will be defined in part by Service culture, normal operating environment, and level of responsibility. Adaptability training for the more technologically focused Air Force and Navy will not be the same as for the more human focused infantry operations of the Army and Marine Corps. The altered situations to which individuals and units must adapt will not be the same for those in aircraft or ships as they are for soldiers and marines on the ground. Adaptability training in a strictly Service setting will be different than adaptability training in a joint or combined forces environment. Adaptability training at the platoon, squadron, or ship level will not be the same as adaptability training for a division, strike group, or Joint Task Force (JTF) staff.

d. Adaptability Training Should Be an Integral Part Of Operations

Adaptability requires the ability to respond to an altered situation—a new set of circumstances. Individuals are able to adapt based on habits of thought and what they have learned from past education, training, and experience. As discussed above, experience, knowledge, and training lead to recognition of patterns and intuitive action based on that recognition—a form of recognition-primed decision-making. Alternatively, if the situation is sufficiently different from past patterns, adaptable individuals, teams, and units have the ability to recognize and acknowledge a uniquely new situation and the confidence, critical and creative thinking ability, and professional and social skills to develop and successfully implement novel solutions to new problems.

What one learns from his or her experience will be enhanced to the degree that the experience is consciously reflected upon and critiqued. Writing formal lessons learned is a common way of critiquing operations. The effort put into writing the lessons learned, the timeliness of the writing, and the extent to which the lessons are distributed and discussed will largely determine their value. Considering events that are fresh in one's

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[78] Ewing, Philip, "USN's Lean Manning Backlash," Defense News, June 21, 2010, 1. See also: Ewing, Philip, "The End of Lean Manning?" Navy Times, June 28, 20-22, and United States Government Accountability Office, "Report to Congressional Committees, Military Readiness, Navy Needs to Reassess its Metrics and Assumptions for Ship Crewing Requirements and Training," June 2010.

mind is most valuable. Sometime after the end of the Vietnam War, the Seventh Fleet commander requested Navy commands to consider the experience of ten years of war and submit lessons learned. For obvious reasons, this exercise was not particularly productive. Many of those tasked to do the writing were not those who had experienced the war, and what was of particular value was no longer in the forefront of the thinking of busy sailors working hard to keep up with the demands of current operations.

An example of immediate feedback that allows individuals, teams, and units to learn from operational experience is the Army's After Action Review (AAR). An Army Training Circular defines the AAR as:

- … a professional discussion of an event, focused on performance standards, that enables soldiers to discover for themselves what happened, why it happened, and how to sustain strengths and improve on weaknesses. It is a tool leaders and units can use to get maximum benefit from every mission or task. It provides
- Candid insights into specific soldier, leader, and unit strengths and weaknesses from various perspectives.
- Feedback and insight critical to battle-focused training.
- Details often lacking in evaluation reports alone.[79]

The circular goes on to describe how best to conduct an AAR.[80] But the major point is that one's experience is enhanced by a critique of it and reflection on it. The reflection can focus on an understanding of the operational environment, an appreciation of all the forces at work in a given situation, or the details of individual and team or unit performance. Understanding why an operation succeeded or failed and building on strengths and correcting weaknesses will result in individuals, teams, and units being better prepared to adapt their skills to new and uncertain situations.

AARs are most frequently associated with peacetime training, but they have universal applicability. According to the same Army circular:

> Training does not stop when a unit goes into combat. Training is *always* an integral part of precombat and combat operations although limited time and proximity to the enemy may restrict the type and extent of training. Only training improves combat performance without imposing the stiff penalties combat inflicts on the untrained.
>
> The AAR is one of the most effective techniques to use in a combat environment. An effective AAR takes little time, and leaders can conduct them almost anywhere consistent with unit security requirements.

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[79] U.S. Army, *A Leader's Guide to After-Action Reviews, Training Circular 25-20.* September 1993, 1.

[80] For a discussion of the development of the AAR process, see: Morrison, John E. and Larry L. Meliza, *Foundations of the After Action Review,* IDA Document D-2332 (Alexandria, VA: Institute for Defense Analyses, June 1999).

> Conducting AARs helps overcome the steep learning curve that exists in a unit exposed to combat and helps the unit ensure that it does not repeat mistakes. It also helps them sustain strengths. By integrating training into combat operations and using tools such as AARs, leaders can dramatically increase their unit's chances for success on the battlefield.[81]

Adaptability is enhanced by constant learning in every environment and by regular critical reflection on one's experiences.

2. Training the Meta-skill of Adaptability

Exercises with a focus on adaptability, as well as routine training not specifically focused on adaptability, but to which an adaptability component is introduced, can provide training in the meta-skill of adaptability.

The key to effective learning, and therefore to adaptability learning, is the "crucible experience." Implied in such an experience is the physical and mental stress that evokes emotional involvement. Additionally, adaptability training requires varying the training challenge or problem in ways that require those being trained to demonstrate the ability to adapt. Finally for the military, whose domain is the range of military operations, development of adaptability requires experience responding to challenges, including unanticipated changes, across the ROMO. Thus, the development of adaptability in DOD requires regular exposure to crucible experiences in a variety of exercises that take the training audience out of its comfort zone and requires it to adapt. Taken together, the exercises should provide exposure to the demands of the ROMO.

Adaptability training must increase in complexity as the seniority of the training audience increases. Good examples of this growing sophistication in training are the efforts of the Army and Special Operations Command to teach operational design and the Australian Army's experimentation with complex decision-making—a program to educate officers on and help them to avoid cognitive traps and emotional tendencies that impair complex decision-making.

Essential to an adaptability training strategy is the expansion of DOD's Red Teaming capability.

> Training adaptable leaders, commander leader teams (CLTs), and units require that they confront situations well beyond their comfort zones while under pressure. This means they must be challenged by more than a threat-based Opposing Force (OPFOR). It requires a full spectrum Red Team that can be both threat- and capabilities-based when it is modeling a human opponent. Capabilities-based means that the OPFOR can use any feasible means to win and is not constrained by what the intelligence

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[81] U.S. Army, *A Leader's Guide to After-Action Reviews, Training Circular 25-20*, September 1993, 23.

> community thinks it knows. Red Teams have the potential to become a central feature of adaptability training. They can provide the stimuli that jolt the training audience away from the familiar and can present the challenges that, when overcome in an intense training event, become part of an expanded range of experience. This addition to an individual's or group's experiential database is the basis of the intuition needed for adaptability.[82]

Red Teaming can also be used to promote adaptive thinking in strategic and operational planning and the development of force structure. Thus, the employment of Red Teams has applicability throughout DOD.

In order to insure that adaptability training is provided to individuals, teams, and units at every level, exercises should be scheduled at specific intervals, based on the nature of the unit or staff concerned. The training should vary over time so that, in total, it includes "crucible experience" training events that require participants to employ all of the cognitive and relational skills in the IDA model in dealing with stressful operational scenarios across the ROMO. Training event designers must understand the essential elements of adaptability training in order to design it effectively It is likely that a combination of military personnel and civilian behavioral psychologists, or some similar combination of expertise, will be best suited to such a task.

As a corollary to the scheduling of periodic, comprehensive "crucible experience" events for units and teams, training practices should incorporate greater variety in the basic and routine training that teaches and employs the fundamentals of tactics, techniques, and procedures. This would be consistent with a mastery orientation aimed at developing the comprehensive understanding of TTPs necessary to apply them in novel situations. According to an October 2005 Army Research Institute for the Behavioral and Social Sciences study:

> When people hold mastery or learning goals for a task (such as a training course), their main objective is to master the knowledge and processes that underlie performance. These types of goals are in contrast to performance goals, where the main object is to achieve a particular level of performance during training. When people hold mastery goals, they are more likely to look upon difficult training situations as learning experiences, rather than as situations to be avoided because they may interfere with performance. Furthermore, because a mastery orientation involves treating mistakes as opportunities to learn, people with mastery goals tend to get less frustrated in the face of failure than do those with performance goals. This may make them more resilient in maintaining performance out of the training context and under demanding conditions than people learning under a performance orientation. A mastery

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[82] Tillson, et al., *Learning to Adapt to Asymmetric Threats*, C-2.

> orientation can be encouraged in training by deemphasizing grades and quantitative performance ratings and focusing instead on providing feedback on how students can leverage their strengths for continuous improvement.[83]

Basic technical procedures must be learned in order to establish a foundation for more complex operations. However, an early, disciplined effort to employ those fundamentals in a variety of training scenarios will enhance the understanding of the fundamentals by those being trained and augment their ability to employ those fundamentals in unpredictable situations, increasing self-confidence and adaptability.

To train in the mastery of fundamental skills and the ability to apply the skills adaptively, training should employ a methodology similar to the Guided Experiential Learning (GEL) methodology espoused by Richard Clark and David Feldon. According to Clark and Feldon, "The GEL training system is designed to promote the development of adaptable experts who not only learn to perform in routine situations but also are able to apply their skills and knowledge when conditions change and shift."[84] GEL employs "increasingly novel and challenging scenarios," but recognizes that "Learning how to apply knowledge flexibly in authentic situations requires trainees first learn how to handle routine situations and only then tackle complex scenarios and solve complex problems."[85] GEL is based on the idea that: "Training and trainers will be more successful if they give strong guidance to trainees when they are in the early stages of learning in a new area of practice. They also need a very long period of application practice so that they can tune and correct their knowledge."[86] GEL is designed to develop adaptability without sacrificing the professional competence at TTPs that is the hallmark of the U.S. military. It should be noted that GEL requires skilled trainers who understand both the fundamentals being taught and the GEL process.

3. Training the Component Skills of Adaptability

Adaptability is itself a skill. We have defined it as a meta-skill or meta-capability that may be seen as a function of the cognitive and relational skills comprising the IDA Adaptability Model. Individuals, units, and commander/leader teams can train to become more adaptable. However, the component skills of adaptability can also be taught, and improvement in the component skills can contribute to becoming more adaptable.

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[83] Army Research Institute for the Behavioral and Social Sciences, Training Adaptable Leaders: Lessons from Research and Practice, Research Report 1844, October 2005, 10.

[84] Richard Clark and David Feldon, "GEL, Adaptable Expertise and Transfer of Training," September 9, 2008.

[85] Ibid.

[86] Clark, Richard E., "Guided Experiential Learning: Training Design and Evaluation," Workshop, 2005.

a. Intuition

Intuition is the capability that allows individuals to draw upon their experience to recognize what is going on in specific situations (make judgments) and guides them in how they react (make decisions) in those situations.[87] The key to developing reliable intuition is experience and practice at decision-making. A crucible experience will provide an indelible contribution to one's intuition. However, a variety of experiences and repetition of familiar tasks, with feedback, also contributes significantly to developing intuition. Therefore, developing professional skills should include repetition of the basics, but with constantly varying conditions, and should require decision-making under time constraints that serve to highlight the consequences of the decisions made and actions taken. An adaptive leader will recognize how a developing situation does or does not fit into familiar patterns and will be better prepared to trust his judgment in applying basic skills to provide an effective response.

As with any skill, intuition requires practice with feedback in order for it to be maintained as a reliable skill. Thus, just as a pilot is required to fly a specific number of hours per month and periodically demonstrate the ability to respond effectively to emergencies in order to maintain currency, regardless of his seniority, the adaptive leader in any Service or branch of Service must be provided with regular opportunities to maintain the basic skills of his or her profession in a variety of situations and to practice decision-making under conditions of physical and mental stress.

The Army specifically recognizes a leader's responsibility to aid subordinates in the development of their intuition in a December 12, 2008 Field Manual:

> To make units agile, commanders and senior NCOs help subordinates develop their intuition. Leaders coach subordinates through various situations comprising varying conditions and degrees of force. That coaching helps subordinates recognize similar situations and intuitively know how to handle them without being limited by a single "approved solution."[88]

The growing capabilities of simulation technology and "serious games"[89] provide expanded opportunities for affordably developing intuition. Simulators have long been used to teach and maintain proficiency in aviation skills, and more recent advanced efforts with ship handling simulators and army weapons systems simulators are examples of the potential for providing the repetitive training necessary to develop intuition in a wide range of skills.

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87 Klein, HiV.

88 U.S. Army, "Training for Full Spectrum Operations—FM 7-0," December 12, 2008, 2-13.

89 The term "serious games" refers to the application of game concepts, technologies, and ideas to non-entertainment applications. It is an example of technology-based training with the potential to increase total training while decreasing the cost of training.

b. Critical Thinking

Critical thinking is an essential component of adaptability. It is also a skill that takes hard work to develop and constant practice to maintain. Derek Bok, the former president of Harvard University, observes: "Basic critical thinking skills are especially likely to remain when they are properly taught, because they are learned through repeated practice and continually used and reused in everyday life after students graduate."[90]

Understanding the metacognitive processes of critical thinking and recognizing its importance should be an important consideration in all military education and training programs. Cultivation of critical thinking skills should be a central focus of all efforts at the military academies and the war colleges, and it should be an integral part of training in everything from basic tactics, techniques, and procedures to small unit exercises and large-scale, pre-deployment exercises. Curriculum and exercise scenario development should specifically address development of critical thinking skills and the professional development of professors, training instructors, and mentors should specifically include the necessary preparation to teach critical thinking.

One venue where a specific effort has been made to integrate critical thinking into a training environment is in the Adaptive Thinking and Leadership modules included in the Civil Affairs and Psychological Operations (PSYOP) curriculum at the John F. Kennedy Special Warfare Center and School (SWCS), where students are challenged to examine their "default mindsets." The military should take advantage of the lessons learned at SWCS in developing courses that integrate critical thinking into training in other venues.

c. Creative Thinking

Conducting training that promotes creative thinking is a particular challenge, because it requires a thorough understanding of the substance of the training as well as agility and flexibility on the part of instructors. If those being trained are encouraged to think adaptively and seek creative solutions to problems, instructors have to be skilled enough to allow the creative thinking while, at the same time, ensuring that basic training objectives are being met. One place where such an approach is being actively pursued with an apparent degree of success is the Department of Military Instruction at the U.S. Military Academy. Under the leadership of Colonel Casey Haskins, the department has adopted an approach titled "Outcomes-Based Training and Education." An introduction to the methodology provided by the Army's Asymmetric Warfare Group describes the approach as:

> "…[promoting] the development of adaptive thinking, individual initiative, collective agility and most importantly, confidence of participants in all aspects of training and education…[encouraging] a more

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[90] Derek Bok, *Our Underachieving Colleges*, (Princeton, NJ: Princeton University Press, 2006), 123-124.

> grounded understanding of complex topics in educational settings…[and allowing] training and education to move beyond the minimalist approach to standards-based training and achieve the desired excellence and mastery our training doctrine envisions."[91]

There are undoubtedly other ways to develop creative thinking. Proven methods should be employed and research should be conducted to identify those methodologies, as well as potential new methodologies.

d. Self-Awareness and Self-Regulation

Self-awareness contributes to effective leadership, and it is an essential component of adaptability. Even if one were not concerned with adaptability, a desire to be productive in one's work and to take on responsibilities as a leader would create an interest in self-awareness.

As discussed in an earlier section, individuals need not only to be self-aware, but also to be capable of self-regulation—to be able to control or redirect disruptive impulses—to think before acting. A recently published Army document perfectly captures this idea.

> "Interpersonal skills will largely determine a Soldier's success as a follower, team member, and representative of the US Army when deployed. These skills include the ability of soldiers to understand and manage individual emotions and to help subordinates and peers deal with the impact of emotions on individual, team, and unit performance. Managing emotion skills must be part of the training and education system."[92]

One particular method of increasing self-awareness is through 360-degree evaluations, which are evaluations of an individual by superiors, subordinates, peers, and, possibly, customers. Although research results are mixed, studies have shown that when used to help an individual understand his strengths and weaknesses, as opposed to a means of recorded performance assessment, the 360-degree evaluation can contribute to improved performance. Some senior military leaders exposed to such evaluations have commented that they wish they had had the benefit of such analysis much earlier in their careers.

Performing 360-degree evaluations can be expensive. Providing the necessary professional feedback to individuals, as has generally been done, on a large scale could

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[91] "Outcomes-Based Training and Education (OBT&E): An Introduction to the Idea," Instructor Handbook, Military Science Division AY 2010, Department of Military Instruction, United States Military Academy, West Point, NY.

[92] US Army, "The U.S. Army Concept for the Human Dimension in Full Spectrum Operations—2015-2024, TRADOC Pamphlet 525-3-7," June 11, 2008, 29.

be prohibitively expensive. The Navy is experimenting with an automated feedback method in a program called SMARTS [System-Measures-Assesses-Recommends-Tailored-Solutions].[93] As part of an adaptability training strategy, the DOD should continue to explore ways to apply the science of 360-degree evaluations as one means of increasing individual self-awareness.

Another means of increasing self-awareness is through mentoring. Being able routinely to receive critical evaluation of a personal nature and advice intended to help one in his or her professional development can be determinative in developing the adaptability and other skills required to be successful in meeting new challenges. It will be challenging for every individual to find a mentor or for the Services to provide effective mentors to every individual. Developing a culture of mentoring will take time and will require, among other actions, teaching people how to mentor and how to benefit from mentoring.

In 2002, the Chief of Naval Operations (CNO) directed the Navy leadership to "Create a mentoring culture and assign a mentor for every service member by March 03."[94] In his summary report for 2004, the CNO stated that "We built a mentoring culture."[95] Based on conversations with active duty personnel, we learned that mentors had, indeed, been identified for individuals. However, many individuals had not met their mentors; and we found no evidence that mentoring training had been provided. Certainly, developing a mentoring culture will contribute to developing self-awareness and adaptability, but it will not be accomplished quickly through bureaucratic fiat.

Self-awareness and self-regulation are also developed in the context of working with others. Participation as a member of a team can give rise to increased self-awareness, and the demands of teamwork will require self-regulation. A team may be an athletic team, a team assigned to work together in an academic or training environment, or a team formed to carry out specific operational tasks in a military environment. Self-awareness can result from an outsider observing the team's performance and one's contribution to that performance, from the observations and comments of one's fellow teammates, or simply from self-reflection. Self-awareness and self-regulation will be enhanced by the purposeful and informed contributions of athletic coaches, professors and instructors, and team or unit leaders in an operational environment. In each case, improved self-awareness and self-regulation will contribute to improved performance in general and to improved adaptive performance in particular. Those in positions of leadership should be trained to develop teamwork and should take advantage of every

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93 CDR James S. Pfautz, "Adaptability, Self-Awareness, & Organizational Analysis," Brief presented at Adaptability Symposium 2007, Alexandria, VA, December, 2007.

94 U.S. Navy, CNO Guidance for 2003, 8.

95 U.S. Navy, CNO Guidance for 2005, 2.

team opportunity to promote increased self-awareness and the capacity for self-regulation of team members.

e. Social Skills

The adaptability component we have labeled "social skills" includes a wide range of disparate but related skills. They include, among others, communication skills, both oral and written; the ability to influence and persuade; negotiating skills; conflict management and resolution skills; the ability to collaborate effectively; coaching and mentoring skills; cross-cultural knowledge and appreciation; and language skills.

Despite the greater connectivity brought about by information technology, the need to develop social or interpersonal skills is as great as ever. This was recently emphasized by the leadership of the Marine Corps Officer Candidate School. The school has studied the millennial generation—the demographic it is training today—and has found that while young people are constantly connected electronically, they frequently lack the basic social or interpersonal skills that are foundational for leadership, particularly adaptive leadership.[96]

1) Communication Skills

Whether in routine personal relations, in a discussion of ideas, or in explaining an operation and directing action as a leader, the ability to communicate effectively is essential. In particular, effective decision-making based on either analysis or intuition requires effective communication of the decision to those responsible for taking action.

Yet, the ability to communicate is a particular weakness in many areas in the military. As an example, in an education review conducted for the Superintendent of the United States Naval Academy (USNA), the reviewers found that "Surface, Air, and Marine Corps commanders noted that USNA graduates continue to demonstrate inadequate written communication skills."[97]

This observation is not peculiar to the military community: "One *Wall Street Journal* poll of large companies revealed that communications was the most important of all competencies to employers, who frequently complain about the inarticulateness of the college graduates they hire. Surveys also reveal that fear of speaking in front of others is the single most prevalent form of anxiety among adults."[98]

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[96] Colonel R. V. Mancini, Commanding Officer, "Officer Candidates School Command Brief," January 26, 2009.

[97] *Educating Midshipmen for the Future Fleet*, USNA Academic Program Executive Review Group (AERG) Report to the Superintendent, April 2006, 6.

[98] Bok, *Our Underachieving Colleges*, 106.

A concerted effort should be made, starting at the undergraduate level, to develop communication skills; and those skills, both written and oral, should be honed in every training and education venue. In particular it should be recognized at the military academies, in Reserve Officer Training Corps (ROTC) programs, and at the war colleges that writing is difficult work that requires constant practice, is the responsibility of professors in all disciplines to teach, and requires prompt feedback to achieve improvement. Indicative of the inter-relatedness of the components of adaptability, the ability to write is often what allows one to integrate his or her analysis in the process of critical thinking; and the ability to articulate one's thoughts clearly while speaking before others is what allows a decision-maker to elicit the action necessary to provide a timely and effective response to a changed or changing situation.[99]

2) Working With and Influencing Others

The ability to influence and persuade others, negotiate, manage conflict, and collaborate with others is a necessary component of adaptability in that adapting—providing an effective response to an altered situation—can only be accomplished in the context of working with other people. Other people may include members of one's own unit, members of a joint organization, people in other U.S. government agencies, people in non-governmental organizations, members of foreign militaries, or civilians in a foreign culture. The interpersonal skills listed above are necessary to achieve unity of purpose in one's own organization, whether a small team or a coalition force. They are equally important for achieving the desired response from any group, foreign or domestic, that one's organization is trying to assist or work with but which tends to see the world from a different perspective.

The Army recently highlighted the challenge and the importance of developing interpersonal skills:

> While technology can enhance Army forces' effectiveness, land operations are basically a human endeavor involving human interactions. As a result, they are conducted in a complex terrain dominated by fog, friction, and uncertainty. Command in this environment is an art, not a science. It requires leaders who can think creatively, understand their environment to a degree not required before, and can provide original solutions to ever changing problems posed by adaptable foes applying asymmetric capabilities.[100]

The Navy and the Air Force are, similarly, finding themselves increasingly engaged in the same "land operations" and confronting the same adaptability challenges. Even when

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[99] Ibid, 82-108. Observations and suggestions in this paragraph reflect ideas expressed in Bok's chapter: "Learning to Communicate."

[100] U.S. Army, "Training for Full Spectrum Operations—FM 7-0," 12 December 2008, 1-6 to 1-7.

not in a purely land environment, the challenges confronted by the Navy and Air Force often require the interpersonal skills necessary in any organization and, in particular, those needed to succeed while working in the joint, inter-agency, inter-governmental, and multi-national (JIIM) environment.

Training interpersonal skills is, like all other aspects of adaptability training, a continuous process. The skills can be improved in the classroom, in the field, and in the course of day-to-day operations. In a classroom or training environment, the skills can be taught through team learning, group exercises, simulations, games, and role playing. The degree to which the skills are enhanced in any environment will be heavily dependent on the student's self-awareness, a desire to adapt to achieve the intended goal, dedicated practice with constantly varied scenarios, and effective feedback from professors, instructors, and skilled operational leaders. The first requirement is that the development of these skills be recognized as essential to adaptability and the second is that the purposeful training of these skills be included in the strategy to train adaptability.

There is one particular aspect of the traditional military culture that challenges the need and desire to build interpersonal skills—particularly those skills that promote teamwork. Individuals have generally been recognized and promoted based on the degree to which they excel in competition with their peers. One group of individuals is normally advanced at the expense of another group that is not advanced. Hence, the system is often seen as promoting competition at the expense of teamwork.

This phenomenon is not peculiar to the military. A professor of Computer Science and former Dean of Harvard College observed it when he assigned all homework to pairs of students, with the two members submitting the work jointly and receiving the same grade.

> The experience was a sobering one. Some students did fine—especially students who were just happy to pass their quantitative requirement, and students who became so intrigued by the material that they lost sight of the strategic and tactical issues of evaluation. Some students mistrusted the system because it was unfamiliar, but they gradually relaxed. But others were simply angry about it…These students, if they knew anything about cooperation and communication with peers, kept it locked away in a part of their brains they did not use while doing academic work. They had been conditioned to a particular way of pursuing excellence—making sure *others* did not profit from *their* excellence.[101]

The point here is that academic institutions, whether the Service academies, ROTC, or war colleges can contribute to building the interpersonal skills necessary for adaptability

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[101] Harry R. Lewis, *Excellence Without a Soul: How a Great University Forgot Education*, (New York, NY: Public Affairs, 2006), 74-75.

by the manner in which they structure the learning environment and its system of incentives and rewards.

Team social skills are required beyond those associated with a homogeneous unit of a single Service. Development of effective leader teams is central to success in joint and combined operations and operations that require interagency cooperation. Any military organization is a hierarchical combination of commanders and leaders. These hierarchical CLTs often work in parallel with peer CLTs with whom they must collaborate. Decisions are made and actions are taken by CLTs acting in chains of command or chains of coordination.[102] The effective performance of highly competent CLTs prepared to adapt successfully to master unpredictable change is the critical path to success in JIIM warfare across the ROMO.

A strategy for developing adaptive leadership should include a methodology for creating and sustaining high performance CLTs in varying combinations of JIIM environments. OSD should sponsor the development of peer and hierarchical collaboration forums, Leader Development Games and Exercises, and Leader/Team Games and Exercises focused on the skills, knowledge, and attributes required of High Performance leaders and CLTs. Such games and exercises should be scalable from small unit team to joint task force command/staff. OSD sponsored programs should draw on the knowledge management best practices of the Services, be executable on DOD standard collaboration hardware and software, and draw on JIIM-common Information Technology (IT) interfaces.

3) Cross-Cultural and Language Skills

Much has been written since the inception of the Global War on Terror/Long War/Overseas Contingency Operations about the lack of cultural training and language skills in the military and the need to improve significantly in both areas. One example is a recent GAO report that highlighted the negative impact resulting from a lack of cultural understanding and awareness by members of Joint Task Force-Horn of Africa.[103] Both cultural understanding and the ability to speak foreign languages are obvious contributors to the ability to adapt to uncertainty and change across the ROMO. The introduction of a program to enlist legal aliens with certain foreign language and cultural skills other than Spanish into the military is a prime example of the attention this subject is receiving and

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[102] A chain of command is the traditional hierarchical chain of command where each commander actually commands those under him or her in the hierarchy. Chains of coordination directing joint, interagency, and multinational organizations must collaborate to accomplish their mission. See FM 6-22 Army Leadership, 12 October 2006, 3-9.

[103] U.S. Government Accountability Office, "Report to the Subcommittee on National Security and Foreign Affairs, Committee on Oversight and Government Reform, House of Representatives, Defense Management," *DOD Needs to Determine the Future of Its Horn of Africa Task Force*, April 2010.

the need to improve the current level of preparation in both areas.[104] Similarly, programs such as the introduction of operational culture into the School of Advanced Warfighting at the Marine Corps University and increased requirements and opportunities for language training, cultural education, and regional studies at all the Service academies, including immersion programs and full semesters abroad, reflect the growing consensus that culture and language training are essential to the development of future leaders with the ability to adapt to the challenges of operations that require effective social intercourse in foreign cultures. However, despite these initiatives, GAO found in a separate report that "DOD has taken steps to transform its language and regional proficiency capabilities, but it has not yet developed a comprehensive strategic plan to guide its transformation efforts…DOD lacks the information needed to identify gaps in language and regional proficiency and to assess related risks."[105]

Learning languages and understanding foreign cultures is akin to the larger subject of developing adaptability. It is a life-long process at which one can only become continually better, though certainly one can attain a respectable degree of language proficiency in a limited number of years. There are also certain realities with regard to both language and culture. Everyone does not have the same aptitude for or interest in languages. Becoming proficient in a language requires more than the two or four semesters currently required in the various programs at the Service academies. Most individuals will never have the opportunity to learn more than one or two foreign languages. The effort required to learn thoroughly about a given culture and region means that a given individual will likely be able to become conversant with regard to a limited number of regions and cultures. The languages and cultures that will be particularly important during any period of time are uncertain. Thus, training adaptability should include an organized approach to developing a deep reserve of personnel with language and cultural understanding in all major areas of the world. Investment in such education and training may not be realized for a generation, but that only emphasizes the need to get started now.

While no one can become expert in every culture and region, everyone can be taught *how* to study, learn about, and appreciate a foreign culture. As just one example, the Marine Corps University takes a systematic approach to operational culture by teaching five dimensions of culture—environment, economy, social structure, political structure, and belief systems, and then examining two specific cultures using this framework. Other institutions have introduced similar efforts. Each is to be lauded for its

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104 http://www.defenselink.mil/releases/release.aspx?releaseid=12384.

105 U.S. Government Accountability Office, Statement of Sharon L. Pickup, Director, Defense Capabilities and Management, "Testimony Before the Subcommittee on Oversight and Investigations, Committee on Armed Services, House of Representatives, *Military Training, Continued Actions Needed to Guide DOD's Efforts to Improve Language Skills and Regional Proficiency,* June 29, 2010.

initiative, for such efforts will markedly improve the ability of individuals to adapt to operations in environments for which they have not specifically trained, but where the ability to understand and interact with the local population will be critical to success.

If no one person can become expert in every culture, individuals can become expert in a single culture. Such experts will be valuable sources of knowledge and understanding when the military is required to operate in those cultures in the future. The military should develop a broad fund of such expertise through exchange programs, study in foreign universities, or simply time spent in the culture. A sabbatical-like assignment with a Non-Governmental Organization in a developing country would be an example of providing the developing expert with time to learn. A country that is often cited as a potential threat seems to fully understand the importance of gaining such cultural understanding. The Joint Forces Command recently included the following in its assessment of the Joint Operating Environment:

> There are interesting trends in the People's Liberation Army (PLA). The Party has ceded considerable autonomy to the military, allowing the PLA's generals and admirals to build a truly professional force, rather than one constantly hobbled by the party's dictates. This has led to a renaissance in military thinking; one that draws not only from the classics of Chinese writings, but on an extensive examination of Western literature on history, strategy, and war… Above all, the Chinese are interested in the strategic and military thinking of the United States. In the year 2000, *the PLA had more students in America's graduate schools than the U.S. military* [emphasis added], giving the Chinese a growing understanding of America and its military. As a potential future military competitor, China would represent a most serious threat to the United States, because the Chinese could understand America and its strengths and weaknesses far better than Americans understand the Chinese. This emphasis is not surprising, given Sun Tzu's famous aphorism:
>
> *Know the enemy and know yourself; in a hundred battles you will never be in peril. When you are ignorant of the enemy, but know yourself, your chances of winning or losing are equal. If ignorant both of your enemy and of yourself, you are certain in every battle to be in peril.*[106]

The Chinese clearly appreciate the essential nature of cultural understanding as it relates to the capacity to adapt to a rapidly changing world.

4. Adaptability Training that Results from Organizational Culture

While PDRI's training validation has demonstrated that people can be trained to be more adaptive than they otherwise would be, our overall study has also found strong

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[106] U.S. Joint Forces Command. *The Joint Operating Environment (JOE),* Suffolk, VA, November 25, 2008, 27.

indications that the greatest potential for increasing the military's readiness in an operating environment characterized by uncertainty, complexity, ambiguity, and volatility lies in establishing an organizational culture with a sustained commitment to developing adaptive leadership—at every stage of an individual's career and at every level of the organization. A culture of adaptability is characterized by a degree of organizational openness, a willingness to accept prudent risk, and a commitment to creating a learning organization.

While issues of organizational culture are beyond the scope of a study focused on adaptability training, we would like to discuss three aspects of organizational culture that impact adaptability and that would be appropriate subjects for future research with regard to developing adaptability.

a. Career Patterns

One of the chief organizational factors affecting the development of adaptability within the military is the assignment policies of the Services. Immediately following World War II, the general practice in the Services was to provide leaders with assignments that provided a broad range of experience. Leaders tended to be viewed as generalists, and their careers were managed in that image. That has changed in the past half century, as illustrated by specific examples from two of the Services.

In the Army, a task force study of officer development led to the decision in 1997 to codify a system of "single tracking." It replaced the Officer Personnel Management System (OPMS) which had required officers to have both a primary and alternate specialty. As an example, under OPMS an officer might have a primary specialty in the combat arms and a secondary specialty as a financial manager or foreign area officer. When given broader responsibilities as a senior officer, he or she would have a wider range of experience, but with high competence in both areas, upon which to draw. Now, with single tracking, officers remain in a narrower career pattern throughout their careers. The goal has been to develop experience and expertise in a large number of functional areas and to insure that the top officer in each functional area has come up through the ranks in that functional area. This policy prevented shortages that result in senior officers without experience in a functional area being put in charge of an activity requiring in-depth expertise. However, it has also led to a situation where other senior officers have been given very broad responsibilities, beyond those of a single functional area, but were required to draw upon a relatively narrow set of assignment experiences in adapting to their wide range of responsibilities. In short, single tracking tends to increase the likelihood that officers will not be challenged beyond their comfort zones as part of their preparation for positions of senior leadership, and then be poorly prepared for such challenges later. They will have a narrow range of expertise and be accustomed to dealing with problems and issues of a very particular nature in a very particular manner,

but they will not be practiced in the adaptive performance required to address the unpredictable and complex issues that senior leaders confront regularly.

The evolution of Navy career patterns has been similar. Captain Mark Hagerott, a professor at the Naval Academy, has documented the development of a Navy culture that is platform-centric and characterized by technical specialization.[107] He attributes this in large measure to the influence of Admiral Hyman Rickover and the ever-expanding effort to develop new officers who would be successful at the Navy's Nuclear Power School. What originated with a desire to obtain sufficient numbers of submariners has evolved to a "technical specialist" culture in which unrestricted line officers, restricted line officers, and staff corps officers all serve in a very narrow range of assignments defined by their technical qualifications and, in the case of the unrestricted line, the specific type of ships and aircraft in which they serve.

All this highlights the idea that the primary source of training, including adaptability training, is the experience one accrues in the course of performing normal duties. Therefore, any strategy aimed at developing adaptability should place heavy emphasis on patterns of career development. Training, education, and operational assignments should be integrated to achieve multiple goals. They should provide basic professional skills. They should provide the educational foundation upon which an individual can continue to grow. They should insure that individuals with appropriate training and experience are detailed to meet operational requirements. They should also insure that individuals are given not only the training and education needed to develop adaptability, but also a range of operational assignments that will move them beyond their comfort zones and give them an ever broadening perspective and deepening understanding of the complex and uncertain environment in which they must operate and to which they must continually adapt. In other words, career patterns, particularly for those with potential to advance into significant leadership roles, should have the goal of preparing individuals, not just for immediate assignments, but for the broad range of challenging and complex responsibilities they can expect to face as senior officers.

b. Rewarding Adaptive Behavior

We have repeatedly stressed that adaptability is a meta-skill, or meta-capability, required to leverage all other capabilities. The Secretary of Defense has stressed the importance of culture, including reward systems, in developing capabilities. In a 2008 speech delivered at the National Defense University, he said,

> In the end, the military capabilities we need cannot be separated from the cultural traits and reward structure of the institutions we have: the signals

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[107] Mark R. Hagerott, *Commanding Men and Machines: Admiralship, Technology, and Ideology in the 20th Century U.S. Navy*. (Dissertation, University of Maryland, College Park, 2008).

> sent by what gets funded, who gets promoted, what is taught in the academies and staff colleges, and how we train.[108]

In a December 2008 Field Manual, Army leadership makes the point even more emphatically with regard to rewarding adaptability: "…leaders should reward subordinates by recognizing those who adapt to unfamiliar situations, seize the initiative, and develop creative solutions."[109]

There are many forces at work in military culture that tend to do just the opposite—to discourage innovation and adaptive behavior. The culture will not be changed dramatically in a short period of time. However, the more that senior leaders recognize the importance of adaptability and what constitutes adaptability, the greater will be the tendency to reward adaptive behavior. It must be remembered that adapting is not merely changing, but, rather, providing an effective response to an altered situation. The key word is effective. It is in everyone's interest to reward those who act effectively in the face of complexity and uncertainty. This is true at the tactical and operational levels on the battlefields of Iraq and Afghanistan, and it is equally true among those in the Pentagon making decisions about strategy and force structure. Assignment and promotion policies should reward those who have demonstrated the ability to adapt in the past and who exhibit the potential to adapt in the future to an unpredictable environment.

c. Emphasis on Education

In comparing aspects of culture that contribute to adaptive behavior, each Service can be seen as having relative strengths and weaknesses. One example is the approach of the Services to education and the importance they appear to attach to education. Referring to a Graduate Education Review Board briefing titled "Transforming Graduate and Professional Military Education," Professor John B. Hattendorf, the chairman of the Naval War College's Maritime History Department observed:

> At least 90 percent of the general officers in the other U.S. armed services have attended both an intermediate and a senior service college, where historical understanding plays an important role in educating senior officers in policy, strategy, and the nature of warfare. In contrast, only around 30 percent of the serving flag officers in the U.S. Navy have attended even one senior service college, while less than 5 percent have attended both an intermediate and a senior service college. Thus, even at the highest level, naval professionals lack education in the whole range of disciplines that provide enhanced critical thinking and decision skills for

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[108] Robert M. Gates, Speech delivered at the National Defense University, Washington, D.C., September 29, 2008.

[109] U.S. Army, "Training for Full Spectrum Operations—FM 7-0," 12 December 2008, 2-3.

> dealing with our modern world, with its increasing complexity and potential for information overload.[110]

At one time, there was an emphasis on war college education in the Navy. In 1942, 98% of all seagoing flag officers had attended the Naval War College.[111] Our May 2010 review of Navy flag officer statistics indicated that of 234 flag officers serving, only 58 (25%) had attended the Naval War College and only 105 (45%) had attended a full ten-month course at any war college. While acknowledging that experience on the job likely provides the greatest source of adaptability training, one can wonder why the Navy seems to have decided professional education—an important contributor to adaptability—deserves such a low priority in career development. Is there a more balanced approach to career development that would better serve the Navy?

This is an interesting example of differences in Service culture that may provide insight into the best way to develop adaptive leaders. More importantly though, a DOD strategy for enhancing adaptability should consider, in detail, the role of undergraduate, graduate, and professional military education, as well as the substance and timing of such education. Education should be valued for its contribution to individual growth and organizational readiness over a long period, and a strategy for developing adaptability should include a comprehensive education strategy.

E. Resources and Means DOD Will Need to Carry Out the Strategy

Based on the audience, goal, and essential elements of the strategy outlined above, there are basic resources, means, and organization required to implement an adaptability training strategy. It is important to recognize that in many cases the resource requirements could be met by redirecting existing resources or utilizing those existing resources for multiple purposes. In particular, the very constrained resource of time available for training must be taken into account. What we propose for adaptability training in many instances involves not adding training time, but modifying the way training is conducted.

While the Services are responsible for training their personnel, an adaptability training initiative intended to impact all of DOD will require leadership resources from within OSD. Time and energy will be required to bring together appropriate leaders from throughout DOD to define the initiative, guide the establishment of effective plans of action and milestones (POA&Ms), and achieve synergy and economies in the creation and resourcing of adaptability training assets.

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[110] John B. Hattendorf, "The Uses of Maritime History in and for the Navy," *Navy War College Review*, Spring 2003, Vol. LVI, No 2.

[111] Hagerott.

Similarly, the Services and DOD Agencies will need to provide senior leadership time and energy to establish independent Service and Agency task forces to develop adaptability training strategies and associated POA&Ms and to identify required resources to execute the strategies. This same leadership will be required to insure that an appropriate team of subordinate leaders assumes responsibility for energetically pursuing the initiatives undertaken. By its very nature, change demands energy to overcome the inertia of business as usual.

Senior leaders across DOD regularly extol the importance of adaptability. The first resource required for developing adaptability is the time, talent, energy, and dedication of many of those same leaders. The initial task of leadership, and one that will fall to OSD and the Joint Staff, will be to bring together appropriate senior leaders from the Services and DOD agencies for the purpose of achieving consensus on an explicit definition of adaptability; on the skills, competencies, and attributes necessary to perform adaptively; and on the need to think and plan intentionally and strategically in order to develop more adaptable individuals and organizations. Organizing a forum for such a purpose will require considerable effort, skill, and attention to detail. OSD will, itself, need to establish an ongoing leadership organization to monitor, and perhaps in some cases oversee, the adaptability development efforts of the Services and DOD agencies.

Similarly, senior leaders in the Services and DOD agencies will be required to identify appropriate supporting leadership in their own organizations and to form organizational structures capable of defining and putting into effect initiatives based on the consensus achieved at the OSD level. They will also have to devote the resources necessary to hold subordinate leaders accountable for executing the initiatives. Again, the resources required will be the time, talent, and energy of key people. It will mean setting priorities such that leadership resources, which are finite, are devoted in appropriate measure to the adaptability development task.

A significant finding of this study has been the importance of properly motivating and properly preparing professors, instructors, trainers, and leaders at every level for their roles in developing adaptability and adaptability-related skills. Time must be devoted to preparing those individuals, already in their jobs, who will train adaptability, teach critical thinking, employ the methods of guided experiential learning or output based training, be responsible for producing students with well-developed communication skills, and conduct after action reviews during both training and operations. On an ongoing basis, personnel resources must be devoted to insuring that properly qualified and motivated individuals are assigned to training and instructor billets. The person who excels operationally or as a manager may not have an aptitude for teaching or may need extra training in order to be an effective teacher.

Adaptability depends on mastery of fundamental professional skills. Infantrymen, pilots, and sailors all need to maintain proficiency in basic tactics, techniques, and

procedures. The balance between training in the field and training in simulators will be different for each community. However, steaming and flying hours, resources for field training, and simulator hours must be made available to the extent necessary to conduct basic training and to allow individuals, teams, and units to achieve and maintain proficiency to established standards. It makes no sense to spend billions on technology and not prepare people to employ the technology effectively.

As in the case of professional training, time must be available at appropriate points in a career for professional education. An adaptable organization will be a learning organization, and this implies continuing education for individuals throughout a career. Educational strategies must be developed that define educational substance commensurate with need while balancing the requirements for education with the requirements for operational and staff personnel.

Because time is a critical resource, every effort should be made to insure that time devoted to training is being used as effectively and as efficiently as possible. To prevent wasting valuable time, resources must be devoted to establishing billets for training and education experts where they do not now exist. In some cases, it may be possible to restructure existing billets to achieve the same goal. It is likely that a combination of military personnel with operational experience and civilian social scientists and training developers will be most effective in producing training scenarios best suited to inculcate both fundamental skills and adaptability skills at every level—operational and strategic, as well as tactical.

Adaptability training will require resources devoted to specifically designed training facilities and tools or to the adaptation of current facilities and tools. The Marine Corps Infantry Immersion Trainer is an example of a training facility that, when utilizing well-designed scenarios and well-prepared trainers, is capable of providing effective adaptability training. To enhance training, numerous training facilities are currently using role players that are natives of the countries to which the trainees will deploy. With appropriate scenarios and prepared facilitators, these role players can contribute to developing the relational skills associated with adaptability. In our observation of the training validation at Ft. Riley and of training at Ft. Bragg, we saw the challenges in insuring that role players make a consistent and meaningful contribution to training.

Simulators have generally been used to train and maintain proficiency with regard to well-established procedures. However, they can also be used with novel scenarios to train adaptability skills. An area requiring further research is the use of simulation to assess human performance and competencies, including adaptive performance.

Another form of technology, properly designed “serious games,” can also be used to train adaptability skills. An excellent example is the use of Dietrich Dorner’s “The

Chocolate Factory" in the Army School of Advanced Military Studies course to teach complex decision making.[112]

With appropriate design considerations, existing technologically-based Joint and Service training and knowledge systems could be used as vehicles to enhance adaptability. Examples are the Joint National Training Capability (JNTC), the Joint Knowledge Development and Distribution Capability (JKDDC), and the Army's Battle Command Knowledge System. The key is to insure that resources devoted to technology for adaptability training focus equally on the substance of the training and the method of delivery. A highly critical March 2009 Navy Inspector General report on computer based training provided strong evidence of the potential dangers of relying on technology to save training time and money.[113] Resources must be made available to insure that technology is doing what is intended and to allow technology to be used in conjunction with live training where it is necessary. In particular, resources must be made available to provide qualified instructors, trainers, and facilitators to employ the technology and to interface when necessary with those being trained. In the Navy case, it appears that resources were applied in a manner that was, at least to some extent, counterproductive.

A priority area in which the application of resources must be considered is research and development. As stated by PDRI in an earlier report related to this study, "Despite the interest in improving adaptive performance, to date there has been no consensus as to the best method of enhancing adaptive performance…"[114] Efforts to develop more adaptable individuals and organizations will require a structured, programmatic research and development program that includes design studies (how best to train adaptability), transfer studies (ensuring adaptability training improves performance, operational effectiveness, and force productivity in the operational environment), measurement studies (development of metrics to measure adaptability, the effects of adaptability training, and the effectiveness of various interventions and adaptability training tools), and organizational studies (to determine whether the DOD culture and structure, including policies, foster or inhibit adaptability). It is important to recognize that adaptability training never stands alone, but is linked to the training of core military capabilities. Adaptability training will be the catalyst for the research but all related training will benefit from improved training methodologies. Resources devoted to adaptability training research and development will necessarily be part of the larger training research and development program within DOD and the Services and can be prioritized accordingly.

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[112] For a discussion of the challenges of decision making in a complex environment, the type of environment in which the military operates, see: Dietrich Dorner, *The Logic of Failure*: *Recognizing and Avoiding Error in Complex Situations* (Perseus Books. Cambridge, MA) 1997.

[113] Phillip Ewing, "Computer Based Failure," Navy Times, June 15, 2009, 24-26.

[114] Rose A. Mueller-Hanson et al., July 2009, iii.

The resource requirements for undertaking a robust and integrated effort to train an adaptive military are not trivial. However, the impact of such a dedicated effort would potentially be greater than that of any single technology or weapon system. A more adaptable force will, by definition, respond more effectively to unpredictable change; and effective response to change can, potentially, lead to reduced incidence of conflict, more rapid success in the event of conflict, and fewer lost lives in every situation. Leaders continually stress that the most important asset the military has is its people. Preparing those people to meet the unpredictable challenges they will face will require providing resources necessary to develop their cognitive and relational capacities to adapt and their confidence in those capacities.

F. Implementing an Adaptability Training Strategy

The responsibility for training lies with the Services and DOD agencies, and, therefore, the Service secretaries and agency heads are best positioned to lead adaptability training efforts. However, OSD is uniquely suited to act as a catalyst and facilitate an initiative that will involve all elements of DOD.

The Under Secretary of Defense (Personnel and Readiness) (USD(P&R)), in conjunction with the Director of the Joint Staff, should convene a DOD-wide (Services, Joint Staff, and DOD Agencies) senior leadership forum to explore the development of adaptability as an essential military capability within DOD. This initial forum should concentrate on two goals. First, the members of the forum should, with the assistance of subject matter experts, seek agreement on a clear definition of adaptability and identify the skills and competencies that characterize adaptable performance at various organizational levels and within specific venues. Second, the forum should also attempt to lay out a framework for developing initial POA&Ms, or roadmaps, for adaptability development initiatives, with the goal of having the Services, Joint Staff, and DOD agencies develop their own strategies and roadmaps.

The Under Secretary of Defense (Personnel & Readiness) should establish a defined and enduring leadership group, composed of senior Joint, Service, and Agency leaders, to facilitate the coordination and resourcing of training programs necessary to sustain a long-term commitment to making DOD and its people increasingly more adaptable. An important function of the leadership group should be to insure that programs designed to develop and enhance adaptability are adequately resourced on a continuing basis. In particular, the group should:

- Promote the integration of Joint, Service, and Agency efforts by constructing a detailed roadmap for an ongoing process of adaptability training development.
- Sponsor and provide oversight of a robust research and development program in support of adaptability training.

- Coordinate the development of prototype adaptability training modules for each of the training levels/groups depicted in Figure 5, Section IV, tailored for unique Service and Agency audiences.
- Promote the development of a Red Teaming capability across DOD.
- Identify ways to leverage technology to enhance adaptability training and insure that technology advances are incorporated throughout DOD.
- Establish an ongoing review to determine where Technology-Based Training (adaptive and distributable) can be utilized to facilitate or enhance all training, including adaptability training.
- Insure sharing of the results of adaptability training initiatives across the department.

The Service Secretaries/Service Chiefs, DOD Agency heads, and Joint Staff should, consistent with their Title 10 responsibilities, provide leadership and managerial oversight to support adaptability training initiatives. In particular, they should:

- Establish adaptability training task forces with appropriate senior leadership. Success will require the collaborative and dedicated effort of people who see the long-term value of increasing individual and organizational adaptability.
- Establish adequate organizational structures to support development of adaptability training programs.
- Develop adaptability training strategies, including education strategies, and associated POA&Ms, identifying the resources required to execute the strategies.
- Establish Service level R&D programs in support of adaptability training.
- Provide estimates of, and advocacy for, the resources necessary to support all aspects of adaptability training.
- Insure that career development practices promote training adaptability skills and that adaptable performance at all levels is recognized and rewarded.

The Service, Agency, and Joint Staff POA&Ms for developing adaptability should include:

- Establishment of an extended program of Service-specific, “crucible–type” adaptability development exercises designed to demonstrate the efficacy of various training methodologies with a broad range of training audiences. The roadmaps should acknowledge the long range and ongoing nature of this initiative by reflecting a phased, multi-year implementation plan.
- Establishment of an extended program to make adaptability training a component of existing TTP training and a definitive element in the design of major exercises.
- Specification of actions designed to promote the development of the separate component skills of adaptability as defined by the OSD leadership group.

- Determination of training requirements and assessment of current training quality in areas related to the development of adaptability.
- Incorporation of specific manpower and personnel initiatives to foster the development of adaptable leaders, teams, and units.

An example and outline of a roadmap is provided in Appendix C. The roadmap suggests steps that will be needed to implement a successful strategy and a logical progression in pursuing the strategy. The roadmap emphasizes the importance of defining the adaptability training goal in detail before any further actions, the importance of involving senior OSD, Joint, Service, and Agency leadership in defining the goal and overseeing planning, and the necessity of senior leaders giving attention to the details of execution of the strategy in the out years. Nothing in the roadmap precludes OSD, the Services, or DOD Agencies from undertaking initiatives in support of adaptability development in advance of the nominal timeline.

More adaptable performance is to be valued greatly, but it can only be developed, assessed, and appreciated over a long period of time. Developing and implementing a training strategy designed to enhance the adaptability of individuals, teams, and units across DOD will be a project requiring years of effort and will itself be an adaptive process. However, an effective adaptability training strategy can be expected to collapse the time needed for individuals to attain a given maturity level with regard to the meta-skill of adaptability and to increase the adaptability of teams, units, and organizations within DOD. The value of such a strategy will be reflected in the improvement of individual performance over the course of a career and the continually improving performance of teams, units, and the major organizations within DOD as a whole.

7. Policy Recommendations

The policy recommendations for developing more adaptable individuals, teams, and units—and, ultimately, more adaptive forces and more adaptive institutions—are a result of the various aspects of this study.

The recommendations derive, first of all, from an appreciation of the meaning of the word adaptability. The word is frequently used by leaders at all levels, but nowhere does DOD define it. The word has specific meaning in the scientific and academic world, and this study uses a specific definition of adaptability as a meta-skill, succinctly depicted in a model that contains foundational adaptability-related skills and competencies.

The recommendations also derive from continuing literature research that has led to a greater appreciation of the factors affecting an individual's propensity for adaptability and of the requirements for achieving more adaptive performance.

The recommendations are informed by lessons learned in the conduct of the two adaptability training validations associated with this study.

Finally, the recommendations are intended to complement the adaptability training strategy proposed in this study and to effect its major proposed initiatives.

A. Policy Analysis

A detailed review of DOD documents considered likely to contain policy relevant to adaptability training is in Appendix D. The following is a summary of the findings of that review and our evaluation of what would constitute the substance of a comprehensive and effective adaptability training policy.

B. Documents Reviewed

Department of Defense Directive 1322.18, Military Training, January 13, 2009

Department of Defense Training Transformation Implementation Plan FY2006-FY2011, February 23, 2006

Joint Training Functional Concept, Version 1.0, August 14, 2007

Strategic Plan for Transforming DOD Training, February 5, 2009

Department of Defense Instruction 1322.mm, Implementing DOD Training (DRAFT) (February 26, 2010)

Strategic Plan for the Next Generation of Training for the Department of Defense (DRAFT) (January 20, 2010)

C. Analysis of Documents Reviewed

1. Department of Defense Directive 1322.18, Military Training, January 13, 2009

There is nothing in this directive that addresses adaptability training.

2. Department of Defense Training Transformation Implementation Plan FY2006-FY2011, February 23, 2006

The introductory comments of this document appear to foreshadow efforts to develop adaptability. The plan recognizes the uncertain nature of the operational environment and the need for the Department of Defense to be able to adapt within that environment. It identifies as one of the five key objectives of the Training Transformation (T2) Program: "Develop individuals and organizations that improvise and adapt to emerging challenges,"[115] and states that achieving that and other objectives "…requires preparing the DOD Components to learn, improvise, and adapt to constantly changing threats and conditions in addition to executing doctrine to standards."[116]

However, the plan does not define adaptability or explain how it will develop adaptability or more adaptive forces, other than to say it will be done through education and training. Its real focus is on building specific training capabilities and identifying gaps in training capabilities. The goal is to ensure that joint forces have trained and rehearsed in preparation for known challenges. It envisions a lessons learned process that keeps abreast of emerging challenges. It does not address preparing individuals, units, and teams of leaders to adapt to what they have not trained for or for the unpredictable.

The document is designed to create a process for resource allocation in the world of joint training. Its focus is on the JKDDC, the JNTC, and the Joint Assessment and Enabling Capability. It envisions allocating resources to support technical systems and training infrastructure. It is best described as supporting a business strategy that incorporates allocation of resources for training systems and facilities into the larger planning and resource management process.

3. Joint Training Functional Concept, Version 1.0, August 14, 2007

The focus of the Joint Training Functional Concept (JTFC) is on the training process and not on training adaptability. However, it does spell out goals for training and

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[115] Department of Defense, Department of Defense Training Transformation Implementation Plan FY2006-FY2011, February 23, 2006, 6.

[116] Ibid.

otherwise developing adaptability, specifies actions required to achieve those goals, and addresses the need for metrics to measure the effectiveness of actions taken to develop adaptability.

Specifically, the JTFC calls for developing "The ability of individuals, units, and staffs to modify their behavior quickly and appropriately when circumstances change in ways for which they have not been specifically trained."[117] This comports well with the definition of adaptability used in this study: the operable capacity to bring about an effective response to an altered situation. Further, the concept specifically calls for capabilities related to the development, in a holistic manner, of both the cognitive and relational skills illustrated in the IDA model of adaptability.

One of several supporting ideas contained in the concept is that joint training processes must provide an "Appropriate focus on all echelons of the force across all organizations and all levels of war."[118] This is consistent with the IDA Adaptability Learning Concept, which illustrates the idea of providing adaptability training at the individual, team, and unit level, throughout a career and for every size organization. The IDA concept also emphasizes that adaptability is required at all levels of war—tactical, operational, and strategic.

The JTFC addresses the importance of developing a culture of adaptability. The concept calls for a system that produces a "joint culture of adaptation [that] involves developing both adaptable individuals and adaptable systems."[119] The concept recognizes that a culture of adaptability requires a holistic approach to developing adaptability, and that such an approach goes beyond training, education, and experience. It expressly states the necessity of "…coordinating joint training and education with service personnel actions and processes, such as recruitment; effective personnel screening; and occupational assignment, retention, and rotation."[120]

Importantly, the JTFC acknowledges that the best ways of improving adaptability have not been identified, the importance of experimentation, and the potential of employing the science of learning in efforts to improve training. Specifically, the JTFC calls for "The ability to integrate training specialists and subject matter experts to create the most effective training for joint force individuals, units, and staffs."[121]

The JTFC recognizes the need for metrics and assessments to insure that training is producing the desired outcomes. Specifically, it addresses the need for metrics that

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[117] "Joint Training Functional Concept Version 1.0," Department of Defense, August 14, 2007, 18.

[118] Ibid., 12.

[119] Ibid., 18.

[120] Ibid., 19.

[121] Ibid., 15.

measure the extent to which training promotes adaptability and metrics that insure training transfer—that what is trained is retained and used in the operating environment.

While the focus of this document is not adaptability training, the JTFC goes a long way toward describing what is required to train for and otherwise develop adaptability. It addresses specific cognitive and relational skills, the need for a holistic approach that includes personnel policies and the employment of metrics to measure training effectiveness and progress. However, it does not define adaptability or enumerate the full set of skills associated with adaptability. An effective policy for training adaptability will need to lay this basic groundwork before it can specify exactly how adaptability and its related skills and competencies are to be developed. . If a new policy document first defined adaptability and specified the skills required in order to enhance adaptability, it could draw heavily on the JTFC to prescribe policy and strategies for developing adaptable individuals, teams, and units and an attendant culture of adaptability.

4. Strategic Plan for Transforming DOD Training, February 5, 2009

This document clearly states as an objective the need to learn to adapt to unpredictable challenges. It correctly observes that the knowledge, skills, and abilities needed to perform mission essential tasks are foundational to developing adaptability, but it does not define adaptability or address the related skills required to be able to perform the tasks adaptively in response to a changed situation.

The emphasis of the plan is on the speed and agility of the training process—the training system's responsiveness to changes in the operational environment. The basic concept of the strategic plan is that the joint force and individuals will be prepared to adapt to new challenges as a result of being trained for those new and specifically known (not unpredictable) challenges by an agile training system capable of rapidly modifying what is being trained based on lessons learned. The plan also emphasizes the importance of being able to deliver up-to-date training worldwide.

The plan does not provide a strategy for training individuals and the joint force so that they will be prepared to adapt to unpredictable challenges. The plan frequently mentions cultural knowledge, language skills, and regional awareness (all adaptability-related skills); but it does not offer any guidance on how to allocate scare resources so that an appropriate group of people might gain mastery in these areas.

The plan makes an important contribution by clearly recognizing the need for metrics to assess the effectiveness of adaptability training.

5. Department of Defense Instruction 1322.mm, Implementing DOD Training (DRAFT) (February 26, 2010)

This draft instruction clearly states a policy goal of developing adaptable forces and prescribes adaptability training requirements that are consistent with the IDA model of adaptability. The skills it associates with adaptive and agile forces are in concert with the IDA model. Although the document refers to adaptability related skills and competencies, it does not specifically define adaptability or attempt to provide a comprehensive list of skills that contribute to overall adaptive performance. Lack of specifics about the skills to be trained and how they are to be trained leaves the implementation of training without requisite basic goals.

The document's description of balanced capabilities reflects the need to be able to perform adaptively across the ROMO—the military domain for adaptive performance. In specifying the need to be able to operate in harmony with non-DOD organizations, it reflects IDA's basic concept for training which includes adaptability training for teams and units in a JIIM environment. In addressing the adaptation of DOD itself to current and future threats, the document acknowledges the need for adaptability not just at the tactical level and operational level, but at the strategic level as well.

In assigning responsibilities for establishing training policies, the instruction acknowledges that developing adaptability is not just a training issue, but a career development issue, and that developing adaptability requires incentives. By assigning primary responsibility to the USD(P&R), the instruction recognizes the high level of oversight necessary to effect a comprehensive and transformational policy.

The instruction assigns responsibilities within OSD for establishing and leading the implementation of policies that promote adoption of adaptability curricula, as well as responsibilities for creating effective learning continuums and incentives to engage in the continuous learning necessary to enhance adaptability. But while a stated purpose of the document is to adjust the education strategy, no education strategy is provided or prescribed and the content of the curricula to foster adaptability is not described.

Mastery of basic tactics, techniques, and procedures is foundational to developing adaptability, and this instruction holds the Service Secretaries responsible for insuring the operating forces maintain standards in their core competencies.

The plan references the draft of a "Strategic Plan for the Next Generation of Training for the Department of Defense." This will be key. Implementing DOD-wide training focused on adaptability will require a comprehensive strategic plan for training adaptability to guide and hold accountable those responsible for developing and implementing policies.

It should be noted that this document will cancel the Department of Defense Training Transformation Implementation Plan FY2006-FY2011.

6. Strategic Plan for the Next Generation of Training for the Department of Defense (DRAFT) (January 20, 2010)

This document seeks to establish "a foundational strategy for use by the DOD Components"[122] in developing and implementing joint training with interagency, intergovernmental, nongovernmental and multinational partners in support of integrated operations. It is aimed at the federated training community's three-star leadership. The document emphasizes the need to adapt, the importance of a culture of adaptability, and training that promotes the development of adaptive capabilities and skills. Specifically, it addresses the need to develop proficiency in basic job skills, intuition, critical thinking, self-awareness, and a variety of interpersonal and social skills. It emphasizes the need for training that deals with complexity, takes students outside their comfort zones, and requires decision-making under pressure. It acknowledges the important role to be played by the behavioral sciences. It calls for a training continuum that reaches from the individual level to the Combatant Commander staff. It also acknowledges the important interrelationship between training, education, and experience, the need to develop a learning organization, the important role to be played by trainers and educators, and a requirement to reward adaptable individuals.

This plan prescribes training goals heavily weighted in favor of developing adaptability, describes the desired training environment, and emphasizes specific technology requirements and methods for training delivery. It is particularly concerned with leveraging emerging technologies and rapidly incorporating lessons learned to achieve the training goals. The document is noteworthy in calling for crucible training events[123] and the development of complex decision making skills. Both are essential to developing a more adaptive force. While the goal of developing a force that is more adaptive is particularly important, this goal is better understood in terms of developing a force more adaptable than it would otherwise be, not, as the document states, "to ensure the total force *remains* relevant, agile and adaptive."[124] The notion that the current force is sufficiently adaptive undermines the rationale for efforts aimed at developing adaptability skills.

While the document clearly acknowledges the interrelationship of training, education, and experience, it does not prescribe a strategy for developing a more adaptable force that addresses this interrelationship. In fact, while a stated purpose of the document is to adjust the education strategy, no education strategy is described.

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[122] Department of Defense, Strategic Plan for the Next Generation of Training for the Department of Defense (DRAFT), January 20, 2010, 1.

[123] Ibid., 16. "Training must put students in difficult, unexpected situations, and require them to decide and act under time pressure."

[124] Ibid., 12. (emphasis added)

Of particular note, the document does not define adaptability, initially leaving those to whom the plan is directed to their own interpretation of the degree to which they are complying with the intent of the document. However, the document takes a first step in the direction of measuring the effectiveness of its training initiatives, including, presumably, the development of more adaptable forces, when it states that the Joint Assessment and Enabling Capability will "[c]ollaboratively develop metrics to address the T2 Program goals."[125] In order to measure the effectiveness of adaptability training, adaptability will first have to be defined.

The role of leadership in designing and implementing a strategy is key. By addressing the document to the training community only, the most senior leaders in the Services are not brought into the efforts of a transformational program that touches on all aspects of training, education, and career development and requires their leadership in order to advance.

The plan offers a specific proposal for focused leadership, suggesting, but not establishing, a DOD Chief Learning Officer responsible for linking experience, education, and training. It is not clear what the authority and responsibilities of such a position would be. However, it is the Services who provide training, education, and career development. If they are to be effective leaders of transformation, there must be consensus on the goals to be achieved and accountability in the efforts to pursue those goals. The person in a position to obtain that consensus and with the authority to demand accountability is the USD(P&R).

A strategy is about ends, ways, and means. This strategy describes the desired ends, including the development of adaptability. It describes the means envisioned to achieve those ends—immersive training environments and the leveraging of technology and the behavioral sciences. However, in describing the "ways" of the strategy—the resources used to accomplish the desired ends—the focus is clearly on technologies associated with the evolution of "the right mix of live, virtual, and constructive capabilities in support of realistic and relevant training anywhere anytime."[126] Thus, the focus of resource allocation is on the deployment of technology and not on the substance of adaptability training.

D. Discussion

The basic questions with regard to training a more adaptive force concern the precise meaning of adaptability and adaptive performance, the adaptability-related skills

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[125] Ibid., Annex A (ANA) 10.

[126] Ibid., ANA 7.

that need to be trained, and the type of training required to produce those skills. What is a comprehensive definition of adaptability and how do you train it?

Although various documents refer to developing adaptability and developing adaptive individuals and leaders, nowhere is adaptability defined. Though a desirable goal, it is not enough simply to say:

> DOD training shall result in forces that… [a]re adaptive and agile; possessing a high degree of cognitive skills (intuition, complex decision making, and critical and creative thinking), relational skills (individual and team skills), mental and physical resilience, cultural literacy, and language capabilities.[127]

Leaders could easily say that they are already doing this. Many do.

Providing a definition of adaptability should be an essential first step in any effort to develop adaptability. In the academic and scientific communities, definitions for adaptability exist, and there is even a general consensus of what constitutes adaptability and adaptive performance. No such understanding and consensus exists within DOD.

If one assumes, as the literature does, that adaptability is, in fact, a meta-skill; then beyond a definition, there needs to be an explicit description of the attributes, skills, and competencies associated with the meta-skill. In order to train adaptability, it is necessary to be specific in describing what is being trained—the desired outcome of the training.

Once adaptability has been defined and its associated skills and attributes described, the challenge becomes determining training interventions that will contribute to developing adaptability. In fact, it is likely that a combination of initiatives involving training, education, and experience will be required to develop adaptability skills and attributes. While existing policy documents state the goal of developing adaptability and doing so through education and training, those documents do not explicitly describe the substance of the training and education required. That the substance of such training and education has not been specified is not surprising since adaptability and the skills and attributes associated with adaptive performance have yet to be defined within DOD.

Determining training interventions that will contribute to developing adaptability will require an extensive and ongoing program of R&D, including a robust and disciplined experimentation program with the support of experts in the behavioral sciences and learning sciences. An inherent part of such an R&D program will be the development of metrics to support experimentation and to assess the effectiveness of training interventions and other initiatives in enhancing adaptive performance.

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[127] Department of Defense, Department of Defense Instruction 1322.mm, Implementing DoD Training (DRAFT), February 26, 2010, 1-2.

Developing the metrics for adaptability will be particularly challenging. There are no joint standards for adaptability or adaptive performance. Specifically, Joint Mission Essential Tasks, which are the standards for training, do not address adaptability and adaptive performance. Even the academic and scientific communities have only begun to wrestle with the problem of identifying suitable metrics.

Thus, developing adaptive individuals and an adaptive culture throughout DOD will require:

- Leadership with a sustained commitment to developing adaptable individuals and institutions
- A definition of the meta-skill of adaptability and a description of its component attributes, skills, and competencies
- An integrated strategic plan for developing adaptability over a lengthy period of time—probably a generation
- Alignment of training, education, and career development
- An understanding of the types of training interventions that will contribute to developing adaptability
- Trained and motivated educators and trainers to train adaptability
- Metrics to measure the effects of various interventions on the development of adaptability
- Accountability in training and education programs
- An ongoing research and development program to develop adaptability training and education methodologies for application at all levels across the Forces and within DOD institutions as well as the means to assess their effectiveness
- Resources aligned to desired outcomes
- A system that provides incentives and rewards for adaptability and adaptive performance

Any policy aimed at developing adaptive individuals and institutions must address each of these areas in an explicit manner.

In summary, it must be recognized first and foremost that without specific definition, without an articulation of the skills and attributes that contribute to adaptive performance, and without a means of recognizing and assessing adaptive or non-adaptive performance, adaptability will become a "buzz word," jargon without meaning. If "adaptive" is seen as a desirable attribute but is not defined, then everything will be described as adaptive. The ultimate goal is not a vague and ill-defined personal attribute of adaptability, but rather more adaptive performance by forces and individuals called upon to respond effectively and in a timely manner to the changes of a complex and unpredictable environment. Efforts to achieve this goal will materialize only if leaders at all levels have an appreciation for what is meant by adaptive performance.

As a meta-skill, adaptability is comprised of specific associated skills and attributes. Achieving more adaptive performance requires establishing a foundational level for those skills and attributes, continually developing and refining them through education, training and experience, and applying them in successively more challenging and complex situations. Progress in achieving the goal of more adaptive performance will require a sustained commitment from leaders across DOD to developing the specifically defined meta-skill of adaptability.

Therefore, a policy that aims to develop progressively more adaptive forces, comprised of progressively more adaptive individuals, will begin by insuring that the goal of adaptive performance and the meta-skill of adaptability are well-defined. The policy will be based on a commitment to developing adaptability through initiatives and practices that have been scientifically tested. The policy will take a comprehensive and holistic approach to developing all aspects of adaptive performance. The policy will recognize that more adaptive forces and individuals will be the result both of purpose-designed adaptability training and of the synergy of efforts in education, training, and operational assignments to develop the component skills, attributes, and competencies associated with adaptive performance. The emphasis of particular training, education, and career development efforts will vary; but what will be critical to success in the effort to achieve more adaptive performance will be a consistent commitment by leaders at every level to take every opportunity to develop adaptability and its associated skills and attributes. The purpose of a policy statement should be to achieve that commitment.

A comprehensive approach to developing a more adaptive force will require coordination of efforts in training, education and career development. DOD Directive 5124.02 states that "the USD(P&R) shall…Develop polices, plans, and programs for…Recruitment, education, training, equal opportunity, compensation (including bonuses, special pay, and incentives), recognition, discipline, and separation of all DOD personnel, both military personnel (Active and Reserve Component, and retired) and civilian employees." The directive also states that the USD(P&R) shall "Develop policies, plans, and programs for…Readiness to insure forces can execute the National Military Strategy; oversight of military training and its enablers…"[128] These are broadly drawn responsibilities and functions that give the USD(P&R) both the responsibility and the authority to undertake the strategy and policy initiatives recommended here that are aimed at developing a more adaptive and ready force.

[128] Department of Defense Directive 5124.02, Under Secretary of Defense for Personnel and Readiness (USD(P&R)), June 23, 2008.

E. Policy Statement

Under the authority of DOD Directive 5124.02, the USD(P&R) should issue policy guidance, either separately or as part of a more inclusive document, that includes the following.

1. Policy

The ability to conduct successful military operations in the current and future operating environments, both characterized by complexity, change, and unpredictability, requires adaptive forces comprised of adaptive individuals. It is DOD policy that operational training of units of all sizes and the training, education, and career development of individuals will seek to enhance the skills and competencies required for more adaptive performance.

2. Responsibilities

a. The Under Secretary of Defense (Personnel and Readiness) shall:

1) Establish a specific and comprehensive DOD definition of adaptive performance and identify the specific skills, attributes, and competencies that contribute to more adaptive performance.
2) Develop and maintain an evolving long-term strategy for the development of a progressively more adaptive force that addresses requirements for training, education, and career development.
3) Establish, as a priority of a long-term strategy, an ongoing research and development program to develop training and education methodologies, with related metrics, that contribute to acquiring the skills, attributes, and competencies associated with adaptive performance.
4) Establish a review process to insure accountability with regard to the elements of the long-term strategy.
5) Establish education policies that support the development of skills, attributes, and competencies associated with adaptive performance.
6) Establish training policies that support the development of skills, attributes, and competencies associated with adaptive performance.
7) Modify career development policies to foster the development and promotion of adaptive individuals.
8) Insure that priority is given to insuring necessary resources are provided to support development of a more adaptive force.

b. The heads of the DOD components shall:

1) Aggressively execute all relevant portions of the strategy for developing an adaptive force.

2) Align training, education, and career development policy and practices to support the development of specific skills, attributes, and competencies associated with adaptive performance.
3) Provide education, training, incentives, and promotion opportunities to support the establishment and maintenance of a corps of professional educators and trainers dedicated to the development of a more adaptable military.

8. Conclusions and Recommendations

A. Essence of the Problem

This study began with the premise that because of the unpredictable nature of the security environment, the key skill or attribute that individuals, teams, and units need to improve is adaptability. While we have found a frequent emphasis on the importance of adaptability among military leaders and a broad consensus concerning what constitutes adaptability and adaptive performance among scientists and academics, we have also found that what will contribute most to developing greater adaptability and produce more adaptive performance remains very much an open question.

B. Training Validation

The training validations that PDRI conducted with the Army at Ft. Riley and the Marine Corps at Quantico showed that a modest amount of training time produced a measurable difference in adaptive performance. More importantly, the training validations demonstrated that while currently existing training increases adaptive performance, interventions designed specifically to enhance adaptive performance produced even greater results. This represents a significant milestone in efforts to develop adaptability training. Earlier efforts with Special Forces, Civil Affairs, and PSYOP personnel at Ft. Bragg had produced anecdotal evidence that purpose-designed training could enhance adaptability, but this study is the first to employ metrics to demonstrate adaptability training results. For those who think that greater adaptability increases military capability, this is a valuable finding.

While PDRI was successful in introducing specific and limited training interventions at Ft. Riley and Quantico and we observed other adaptability-related training interventions in other venues, each was simply an initial effort for a specific audience. A major research and development effort, continuing well into the future, is required to capture the advances in the behavioral and learning sciences for the purposes of teaching and training adaptability and adaptability-related skills across a broad range of audiences.

Similarly, PDRI's development and employment of metrics for adaptability in the process of conducting the training validations was a first in the military. Further research will be needed to develop and refine metrics to assess adaptability and to measure the effectiveness of adaptability learning interventions, the effectiveness of adaptability training tools, and the transfer of adaptability skills to the operational environment.

It must be recognized that building on these initial efforts will be an evolutionary process that adapts the training process based on experience and future research into the best methods of teaching and training adaptability and its components.

C. Contributors to Enhancing Adaptability

Our surveys, literature reviews, observation of training in various venues, and observation of the training validations continue to suggest the best approach to adaptability training will be along two parallel paths. The first approach is periodic exposure to multiple comprehensive "crucible experience" events that take people out of their comfort zones. These training events should be designed to enhance individual, team, and unit capacity with regard to all four components of the IDA model of adaptability and across the range of military operations. Exposure to such training should occur at each stage of an individual's career and as a dedicated phase of the training cycle for deploying units and staffs. Training should be commensurate with a leader's operational environment and level of responsibility—the more senior an individual becomes, the greater the demands and, thus, the more comprehensive the required training and other learning experiences.

The second parallel approach will involve the intentional insertion of more variety into routine training. The aim should be not only to develop and refine specific professional skills, but to practice those skills in a variety of challenging and stressful situations. Routine training will not necessarily accommodate all four components of the IDA model of adaptability, but the goal should be to interject one or more of the components into the training where profitable. Adaptability requires using one's skills to respond effectively to a changed situation. Therefore, the greatest value in training fundamental skills will be realized when those being trained have progressed to the point that they can use their skills in a variety of novel and complex scenarios. Training designed to inculcate specific tactics, techniques and procedures remains as important as ever, but it must also be structured to enhance the meta-skill of adaptability.

Although this study was focused on training, we have become convinced that both of these approaches to training must be complemented by education that contributes to increasing adaptability. Critical thinking skills, communication skills, cultural understanding and awareness, understanding human behavior, and knowledge of government, world affairs and advances in science and technology are all essential to the development of adaptable individuals and teams. The military can provide this education at the Service Academies and through professional military education (PME) throughout a career. Education and training should be mutually reinforcing. The Adaptive Thinking Leader (ATL) course at the Army's Special Warfare Center and School is an example of the blending of training and education. It employs a cadre of military personnel and academic specialists and a blend of classroom education and field training. Similarly, the

Marine Corps, in conjunction with PDRI, is currently integrating training and education elements of the adaptability training validation conducted in the Basic Course into its Sergeants Course.

While training and education are part of a process of spiral development, the robustness of that spiral is entirely dependent upon the real-world experience of those being trained. A narrow career path will constrain what can be learned in a training and education environment because the foundation for learning will be limited. Therefore, to be effective, adaptability training must build upon and be reinforced by operational experience over an entire career.

None of this will be possible without a parallel change in Service cultures, reflected in broadened career patterns, new approaches to PME, and more openness in commander/leader team problem solving. Adaptability should be seen as the cumulative result of experience, education, and training--but not an automatic result. There should be an understanding that improved adaptability commensurate with the demands of a constantly and rapidly changing security environment requires purposeful interventions in every area that impacts personnel development.

D. Implementing Adaptability Training

In our review of potential validation venues, during the validation experiments themselves, and in observing other adaptability-related training, like the program in the Department of Military Instruction at West Point, we consistently saw and heard about the importance of instructor talent. We were repeatedly reminded that an essential component of adaptability training is the selection of talented, professionally qualified, and personally motivated instructors, coaches, and mentors. Adaptability training and education require the dedicated efforts of people who are professionally competent, who understand the complexities of adaptability, and who believe in what they are doing. Adaptability training, by its very nature, is not rote instruction to be carried out by personnel deemed available to be diverted from the more important “real work” of the military. Preparing military personnel to adapt to the unpredictable nature of operations that characterizes the current operating environment requires the talents of adaptive leaders with proven, relevant performance and who themselves are competitive for promotion and assignment to positions that demand the capacity to respond effectively to change.

A corollary to this is that adaptability training instructors need thorough preparation. Even with the best instructors, the idea of training adaptability as a specifically defined skill or capability is a new concept. The cognitive and relational aspects of adaptability can be readily explained, but instructors need time and instruction themselves to understand and absorb their implications for training. Instructor training should include education with regard to both training goals and the means of achieving those goals.

Ideally, instructors would be involved in developing adaptability training and would be allowed to observe and experience adaptability training and to practice implementing it before being required to apply it in an actual training setting. Ultimately, the most effective adaptability training will occur in situations where instructors enthusiastically take ownership of the training.

Thus, the selection and preparation of instructors is also an area that would benefit from additional research. Is it possible to reliably identify those who are well-suited to be instructors? If so, how? What are the best ways to prepare instructors to teach the meta-skill of adaptability and the component skills associated with adaptive performance?

E. Recommendations

The principal recommendations of this study are the creation of a senior leadership group within DOD responsible for the development of a more adaptive military, the design and oversight of a long-term adaptability strategy by that leadership group, and the adoption of a robust adaptability R&D program as a priority within the adaptability strategy.

This study offers a strategic framework, supported by an example roadmap, for developing more adaptable individuals, teams, and units and for achieving a more adaptable culture within the military. The strategy emphasizes the primary importance of formulating a definition of adaptability, with a clearly articulated set of related skills and competencies, that is agreeable to senior leaders across DOD. It addresses the need to identify those who will benefit most from efforts to develop adaptability and specifies overarching principles that must be observed in those efforts. The strategy makes recommendations concerning the development of the meta-skill of adaptability and the development of the component skills of adaptability identified in the IDA model. It suggests specific actions to improve both training and education in ways that will produce more adaptable individuals, teams, and units. Equally important, the strategic framework suggests the need to assess personnel assignment and promotion policies and practices with an eye to their impact on the development of more adaptable leaders.

While the operational environment clearly calls for the initiatives in the strategy, implementation of an adaptability training strategy, within the context of efforts to develop a more adaptable military culture, will require a succession of senior leaders who value the development of adaptability—who consider it not only relevant and doable, but necessary. It will require a leadership that is committed to adaptive performance and that appreciates that developing adaptability requires an adaptive process. Others addressing the same subject have emphasized this point as well:

> The U.S. military officer corps faces profound challenges. Addressing them will require vision, imagination and energy over a sustained period of time...effective reform is an evolutionary and progressive process.[129]

Because of the current focus on the issue, the idea of developing adaptability can be firmly planted and pilot efforts initiated in the near- to mid-term. But sustaining the concept, refining methods of adaptability development, building delivery instruments, and gaining enduring support will likely require a generation and, as with any strategy, the commitment of sufficient resources.

Because of the need for strong, sustained leadership, the strategy recommends that the Under Secretary of Defense (Personnel and Readiness), in conjunction with the Director of the Joint Staff, coordinate an effort led by the Service Secretaries, Service Chiefs, and DOD agency heads to devise and implement a long range adaptability development strategy. Senior leaders from the Services should be included in the leadership group, since they will ultimately be responsible for executing the strategy. Their participation in the strategy development will help to insure understanding of and buy-in to the fundamental concepts and goals of the strategy. Such a leadership group would have the ability to facilitate the coordination and resourcing of training programs necessary to sustain a long-term commitment to making DOD and its people increasingly more adaptable. In particular, this leadership group would be able to insure that programs designed to develop and enhance adaptability are adequately resourced on a continuing basis.

An essential feature of both the strategy and the roadmap is the establishment and execution of a long range research and development program. The IDA model and the strategy that flows from it are supported, to a large extent, by the writings and work of experts in the relevant scientific and academic fields. However, in a scientific sense, much of what is proposed is based on anecdotal evidence of adaptive and non-adaptive performance and conjecture regarding what will produce more adaptive performance. The precise impact of the individual actions called for in the strategy on adaptive performance is unknown. The adaptability validations that are part of this study are a first, but modest, step in demonstrating that purpose-designed interventions can enhance adaptive performance.

Priority should be given to the design of an R&D program aimed at further defining and measuring adaptability and adaptive performance; identifying ways to train adaptability; measuring the effect of adaptability training on operational performance; developing metrics to measure the effects of adaptability training; and assessing the effects of organizational culture on adaptability. The IDA model or any model of

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[129] John A. Nagl and Brian M. Burton, ed., *Keeping the Edge: Revitalizing America's Military Officer Corps,* Center for a New American Security, Washington, D.C., February 2010, 17.

adaptability adopted by the leadership group needs to be understood as offering conjectures about what needs to be trained. These conjectures need to be tested and altered so that adaptability training can then evolve over time based on scientifically tested methodologies. Furthermore, such scientific research will go a long way towards refuting the arguments of those who consider efforts to develop greater adaptability unnecessary. The leadership group will be in a position to sponsor pilot programs to accomplish such testing. Development of a robust adaptability R&D program should be a top priority of those seeking to achieve more adaptive performance across DOD.

Thus, the major recommendations of this study for OSD can be summarized as follows:

- Adopt an explicit DOD definition of adaptability.
- Identify the specific skills and competencies required for more adaptive performance within the military.
- Establish as DOD policy that operational training for units of all sizes and the training, education, and career development of individuals will seek to enhance the skills and competencies required for more adaptive performance.
- Establish a senior and enduring leadership group within DOD that is responsible for the design and oversight of a long-term adaptability training strategy that husbands limited resources.
- Establish detailed Service-level roadmaps, or plans of actions and milestones, that will effectively implement the adaptability training strategy.
- Establish a robust adaptability R&D program.

The development of greater adaptability must be understood as a long-term investment. Without developing a strong scientific foundation and maintaining a sustained commitment to the investment, achieving the goal of more adaptable performance will continue to be problematic—at best, a matter of chance in an environment characterized by complexity, unpredictability, and increasingly rapid change. With a sustained commitment, leaders a generation from now will be better prepared to respond more adaptively at every level—tactical, operational, and strategic; and the greatest return on investment will be the ability of the most senior leaders to make effective strategic decisions in a world that they as junior leaders today cannot imagine.

Appendix A.
References

Army Research Institute for the Behavioral and Social Sciences. "Developing Adaptive Proficiency in Special Forces Officers." Research Report 1831, February 2005.

Army Research Institute for the Behavioral and Social Sciences. "Training Adaptable Leaders: Lessons from Research and Practice." Research Report 1844, October 2005.

Bartone, Paul T., Charles L Barry, and Robert E. Armstrong. "To Build Resilience: Leader Influence on Mental Hardiness." *Defense Horizons*, Center for Technology and National Security Policy, National Defense University, Washington, DC, November 2009.

Bartone, Paul T. and Dennis Kelly. "Psychological Hardiness in Cadets Predicts Later Adaptability as Army Officers." Presented at the American Psychological Society Conference, Boston, MA, May 2010.

Bennis, Warren G. and Robert J. Thomas. *Geeks & Geezers: How Era, Values, and Defining Moments Shape Leaders*. Boston, MA: Harvard Business School Press, 2002.

Bok, Derek. *Our Underachieving Colleges*. Princeton, NJ: Princeton University Press, 2006.

Brannen, Kate. "U.S. Army Lists War-Fighting Challenges." *Defense News*, May 10, 2010.

Burns, William R. Jr. and Waldo D. Freeman. *Developing an Adaptability Training Strategy and Policy for the DoD, Interim Report*. IDA Paper P-4358. Alexandria, VA: Institute for Defense Analyses , October 2008.

Burns, William R. Jr. and Waldo D. Freeman. *Developing More Adaptable Individuals and Institutions*, IDA Paper P-4535, Alexandria, VA: Institute for Defense Analyses, February 2010.

Clark, Richard E., "Training for adaptable performance: A workshop report," ADL Newsletter for Educators and Educational Researchers, September 2009. Accessible at: http://www.ymlp165.com/pubarchive_show_message.php?adlnews+48

Clark, Richard E. "Guided Experiential Learning: Training Design and Evaluation," PDF copy of power points slides handed out during a workshop on Guided Experiential Learning given for TRADOC managers and designers through the Institute for Creative Technologies at the University of Southern California, 2005.

Clark, Richard and David Feldon. “GEL, Adaptable Expertise and Transfer of Training.” Report produced under contract sponsored by the U.S. Army Research, Development, and Engineering Command (RDECOM), Center for Cognitive Technology, Rossier School of Education, University of Southern California, September 9, 2008.

Cohen, Eliot A. and John Gooch, *Military Misfortunes, The Anatomy of Failure in War*. New York: The Free Press, 1990.

Consortium for Research on Emotional Intelligence in Organizations, http://www.eiconsortium.org/reports/emotional_competence_framework.html, accessed May 28, 2010.

Defense Link http://www.defenselink.mil/releases/release.aspx?releaseid=12384

Department of Defense. *Capstone Concept for Joint Operations, Version 2.0*. August 2005.

Department of Defense. *Capstone Concept for Joint Operations, Version 3.0.* January 15, 2009.

Department of Defense. Department of Defense Directive 5124.02. Under Secretary of Defense for Personnel and Readiness (USD(P&R)), June 23, 2008.

Department of Defense. Department of Defense Directive 1322.18, Military Training, January 13, 2009.

Department of Defense. Department of Defense Instruction 1322.mm, Implementing DOD Training (DRAFT), February 2010.

Department of Defense. Department of Defense Training Transformation Implementation Plan FY2006-FY2011, February 23, 2006.

Department of Defense. *Joint Training Functional Concept, Version 1.0*. August 14, 2007.

Department of Defense. Strategic Plan for Transforming DOD Training, February 5, 2009.

Department of Defense. Strategic Plan for the Next Generation of Training for the Department of Defense (DRAFT), January 20, 2010.

Department of Defense. Transformation Planning Guidance, 2003.

Department of Defense. *2005 Training Transformation Assessment, Joint Assessment and Enabling Capability*, December 2005.

Dorner, Dietrich. *The Logic of Failure: Recognizing and Avoiding Error in Complex Situations.* Cambridge, MA: Perseus Books 1997.

Ewing, Phillip. “Computer Based Failure.” *Navy Times*, June 15, 2009.

Ewing, Philip. “USN’s Lean Manning Backlash.” *Defense News*, June 21, 2010.

Ewing, Philip. “The End of Lean Manning?” *Navy Times*, June 28, 2010.

Fletcher, J.D. *Cognitive Readiness: Preparing for the Unexpected*, IDA Document D-3061. Alexandria, VA: Institute for Defense Analyses, September 2004.

Gates, Robert M. Speech delivered at the National Defense University, Washington, D.C., September 29, 2008.

Goleman, Daniel "What Makes a Leader?" *Harvard Business Review* (November-December 1998): 93-102.

Greenspan, Stanley I. and Stuart G. Shanker. *The First Idea: How Symbols, Language, and Intelligence Evolved From Our Primate Ancestors to Modern Humans*. Cambridge, MA: Perseus Books Group, 2004.

Grisogono, Anne-Marie. "The Science of Complex Adaptive Systems and Applications to Defense Systems and Operations." Tutorial on Complex Adaptive Decision Making presented by Dr. Grisogono at the Institute for Defense Analyses, Alexandria, VA, June 18-19, 2009.

Hagerott, Mark R. "Commanding Men and Machines: Admiralship, Technology, and Ideology in the 20th Century U.S. Navy." PhD diss., University of Maryland, College Park, 2008.

Hall, D. T. "Self-Awareness, Identity, and Leader Development." In *Leader Development for Transforming Organization.* Edited by D. V. Day, Stephen J. Zaccaro, Stanley M. Halpin. Mahwah, NJ: Lawrence Erlbaum Associates, 2004.

Hattendorf, John B. "The Uses of Maritime History in and for the Navy," *Navy War College Review* LVI, no, 2 (Spring 2003).

Hedlund, J., Forsythe, G. B., Horvath, J. A., Williams, W. M. Snook, S., & Sternberg, R. "Identifying and assessing tacit knowledge: understanding the practical intelligence of military leaders," *Leadership Quarterly* 14, no. 2 (April 2003).

Josephson, John R. and Susan G. Josephson. *Abductive Inference: Computation, Philosophy and Technology*. Cambridge, England: Cambridge University Press, 1996.

Kiszely, John. "Post-Modern Challenges for Modern Warriors." *The Shrivenham Papers-Number 5*, Defence Academy of the United Kingdom, December 2007.

Klein, Gary. *The Power of Intuition*. New York, NY: Doubleday, January 2003.

Klein, G.; K. G. Ross; B. M. Moon; D. E. Klein; R. R. Hoffman; E. Hollnagel. "Macrocognition." *Intelligent Systems, IEEE* 18, no. (May-Jun 2003): 81 – 85.

Kozlowski, S. W. J. "Training and Developing Adaptive Teams: Theory, Principles, and Research." In *Making Decisions Under Stress: Implications for Individual and Team Training*. Edited by J. A. Cannon-Bowers & E. Salas. Washington, DC: American Psychological Association, 1998.

Lacey, Jim and LTC Kevin Woods. "Adapt or Die." *U.S. Naval Institute Proceedings*, (August 2007):16-20.

Leed, Maren (principal author) and David Sokolow (contributing author). *The Ingenuity Gap, Officer Management for the 21st Century*. Center for Strategic and International Studies, Washington, DC, January 2010.

Lewis, Harry R. *Excellence Without a Soul: How a Great University Forgot Education*. New York, NY: Public Affairs, 2006.

Lussier, James W. and Scott B. Shadrick. "Adaptive Thinking Training For Tactical Leaders." Paper presented at the RTO HFM Symposium on "Advanced Technologies for Military Training," Genoa, Italy, October 13-15, 2003.

Mancini, Colonel R. V. "Officer Candidates School Command Brief." Presented by COL Mancini at Quantico, VA on January 26, 2009.

Matthews, Michael D. "Non-Cognitive Predictors of Soldier Adaptability and Performance," Brief presented at Adaptability Symposium 2007, Alexandria, VA, December 2007.

Meinhart, Richard. "Strategic Thinking within the Context of Adaptability." Brief presented at Adaptability Symposium 2007. Alexandria, VA, December 2007.

Morrison, John E. and Larry L. Meliza. *Foundations of the After Action Review*. IDA Document D-2332. Alexandria, VA: Institute for Defense Analyses, June 1999.

Mueller-Hanson, Rose A., Johnathan K. Nelson, and Erin Swartout. *Proof of Concept Research for Developing Adaptive Performance: Task 2 Report, Validation Plan*. Arlington, VA: PDRI, July 2009.

Mueller-Hanson, Rose A., Johnathan K. Nelson, Erin Swartout, and Hannah Foldes. *Proof of Concept Research for Developing Adaptive Performance: Task 4 Report, Study results (Draft).* Arlington, VA: PDRI, January 2010.

Murray, Williamson. Testimony, House Armed Services Committee, Subcommittee on Professional Military Education. September 10, 2009.

Nagl, John A. and Brian M. Burton, ed. *Keeping the Edge: Revitalizing America's Military Officer Corps*. Center for a New American Security, Washington, D.C., February 2010.

Paul, Richard and Linda Elder. *The Miniature Guide to Critical thinking: Concepts and Tools*. Dillon Beach, CA: Foundation for Critical Thinking, 2006.

Pfautz, CDR James S. "Adaptability, Self-Awareness, & Organizational Analysis." Brief presented at Adaptability Symposium 2007, Alexandria, VA, December 2007.

Pulakos, E.D., S. Arad, M. A. Donovan, & K. E. Plamondon. "Adaptability in the Workplace: Development of a Taxonomy of Adaptive Performance." *Journal of Applied Psychology* 85, no. 4 (August 2000).

Raybourn, Elaine M. "Training System Approaches for Honing Adaptive Thinking, Cultural Awareness and Metacognitive Agility." Brief presented at Adaptability Symposium 2007, Alexandria, VA, December 2007.

Scales, Robert H. “Scales response to Ricks Washington Post article,” 22 April 2009. http://talk.collegeconfidential.com/service-academy-parents/703211-jack-wheeler-usma-66-response-washington-post-editorial.html, accessed June 12, 2010.

Shanker, Thom. “New Army Handbook Teaches Afghanistan Lessons.” *New York Times*, August 13, 2009.

Siegel, Dr. Daniel J. *The Developing Mind: How Relationships and the Brain Interact to Shape Who We Are.* New York, NY: The Guilford Press, 1999.

Sternberg, Robert J., George B. Forsythe, Jennifer Hedlund, Joseph A. Horvath, Richard K. Wagner, Wendy M. Williams, Scott A. Snook, and Elena L. Grigorenko. *Practical Intelligence in Everyday Life.* Cambridge, UK: Cambridge University Press, 2000.

Tillson, John C.F., Waldo D. Freeman, William R. Burns, John E. Michel, Jack A. LeCuyer, Robert H. Scales, D. Robert Worley. *Learning to Adapt to Asymmetric Threats*. IDA Document D-3114. Alexandria, VA: Institute for Defense Analyses, August 2005.

Tillson, John. *Learning Adaptability Strategy (Draft).* Institute for Defense Analyses, May 2006.

Tillson, John. “Learning to Adapt to Asymmetric Threats.” Brief presented at Joint Training and Simulation Conference, Arlington, VA, October 2005.

U.S. Army. “The U.S. Army Concept for the Human Dimension in Full Spectrum Operations—2015-2024, TRADOC Pamphlet 525-3-7,” June 11, 2008.

U.S. Army. FM 6-22, *Army Leadership: Competent, Confident, and Agile*. October 2006.

U.S. Army. “The Army Strategy.” August 22, 2008.

U.S. Army. *A Leader’s Guide to After-Action Reviews*. Training Circular 25-20. September 1993.

U.S. Army. “Training for Full Spectrum Operations—FM 7-0.” December 12, 2008.

U.S. Army. “Outcomes-Based Training and Education (OBT&E): An Introduction to the Idea.” Instructor Handbook, Military Science Division AY 2010. Department of Military Instruction, United States Military Academy, West Point, NY.

U.S. Government Accountability Office. “Report to the Subcommittee on National Security and Foreign Affairs, Committee on Oversight and Government Reform, House of Representatives, Defense Management. DOD Needs to Determine the Future of Its Horn of Africa Task Force,” GAO-1-504, April 2010.

U.S. Government Accountability Office. “Report to Congressional Committees, Military Readiness, Navy Needs to Reassess its Metrics and Assumptions for Ship Crewing Requirements and Training.” GAO-10-592, June 2010.

U.S. Government Accountability Office. Statement of Sharon L. Pickup, Director, Defense Capabilities and Management. “Testimony Before the Subcommittee on Oversight and Investigations, Committee on Armed Services, House of

Representatives, Military Training, Continued Actions Needed to Guide DOD's Efforts to Improve Language Skills and Regional Proficiency," June 29, 2010.

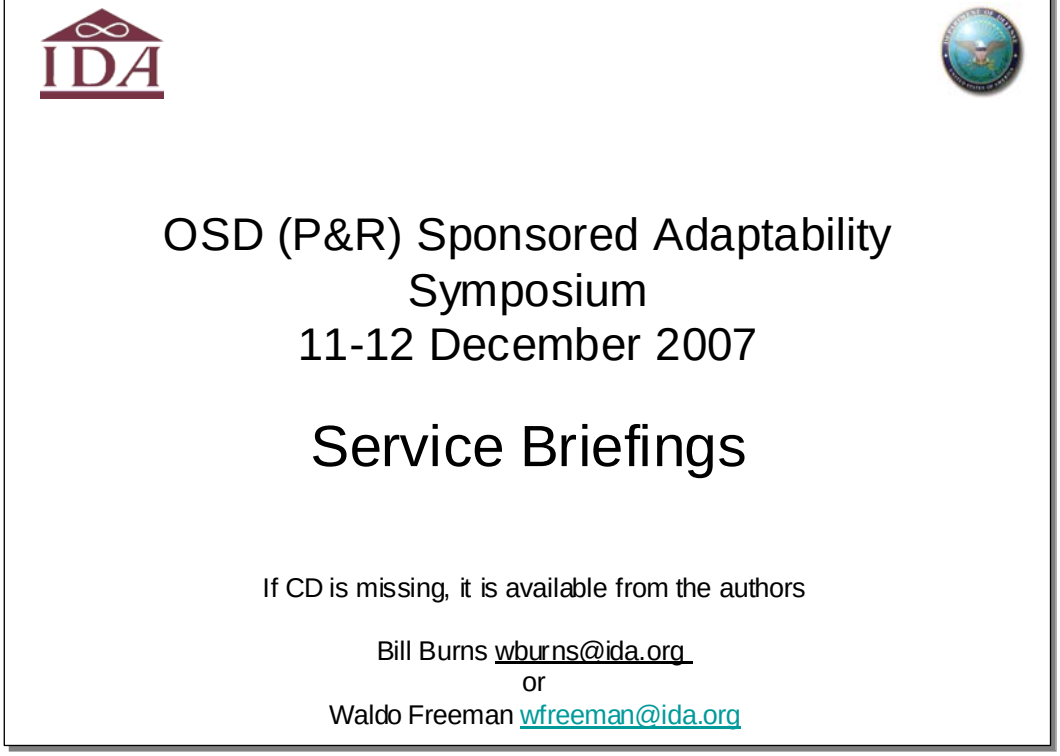
U.S. Joint Forces Command. *The Joint Operating Environment (JOE).* November 25, 2008.

U.S. Navy. Chief of Naval Operations (CNO) Guidance for 2003.

U.S. Navy. CNO Guidance for 2005.

U.S. Navy. *Educating Midshipmen for the Future Fleet*. U.S. Naval Academy Academic Program Executive Review Group (AERG) Report to the Superintendent, April 2006.

Appendix B.
Office of the Secretary of Defense (Personnel & Readiness) (OSD (P&R)) Adaptability Symposium Briefings list



Army Briefings

- Adaptability: Research Concepts and Findings. Dr. Stanley Halpin, ARI
- Adaptive Leaders Methodology (Applied). LTC Max Padilla (ret) & MAJ Don Vandergriff (ret), USA Accessions Command
- DoD Adaptability Initiatives. COL Gary R. Hisle, Jr., Combined Arms Center
- Non-Cognitive Predictors of Soldier Adaptability and Performance. Dr. Michael D. Matthews, USMA
- Adaptability Learning: Instructional Development Revision and Problem-Based Learning. Dr. Bob Bauer, USAARMC
- Training System Approaches for Honing Adaptive Thinking, Cultural Awareness and Metacognitive Agility. Dr. Elaine M. Raybourn, Sandia National Laboratories.
- Strategic Thinking within the Context of Adaptability. Dr. Richard Meinhart, Army War College
- Adaptability Learning Symposium. William M. Darwin, Asymmetric Warfare Group

Navy Briefings

- Battle Stations 21: The Future of Navy Performance. Rodney A. Chapman, Naval Service Training Command
- Adaptability Training in Computer Network Operations (CNO). CTNCS(SW/SS) Christopher J. Dunford, Center for Information Dominance
- Adaptability Training in Naval Intelligence. Dr. Bud Livers, Center for Naval Intelligence
- Adaptability, Self-Awareness, & Organizational Analysis. CDR James S. Pfautz, Center for Naval Leadership
- Adaptability Training. Mr. Robert Taylor, Navy Expeditionary Combat Command
- Critical Thinking @ USNA. Dean Michael C. Halbig and CAPT Robert J. Niewoehner, USNA

USMC Briefings

- Adaptability Training or “Marine Corps Philosophy on Warfighting.” LtCol Travis A. Tebbe, USMC Training and Education Command (TECOM)
- Simulation to Develop Adaptable Marine Leaders. Mr. Donald J. Mathes, TECOM Technology Division
- Marine Corps Tactics & Operations Group (MCTOG). LtCol Timothy E. Barrick, MCTOG
- Marine Corps University: Educating Adaptable Leaders for an Unpredictable Future. LtCol Jay L. Hatton, Command and Staff College, and Dr. Wray R. Johnson, School of Advanced Warfighting

AF Briefing

- OSD Adaptability Learning Symposium: Air Force. Dr. Patricia F. McGill, Headquarters USAF (AF/A1DI)

Appendix C.
Roadmap

Roadmap

The following outline is a DOD-wide roadmap for implementing the strategy described in the main document. It should be emphasized that this is an outline and an example only and it contains elements appropriate to multiple stakeholders in the overall process. Establishment of individual Plans of Action and Milestones (POA&Ms) will require the collaborative effort of leaders responsible for specific actions in order to insure commitment to the plans, understanding of the likely or possible impact of various proposed objectives, understanding of the effects of various complex relationships within and across Service and Agency boundaries, and the availability of necessary resources. This example includes action items that may be appropriate to the Office of the Secretary of Defense (OSD), the Joint Staff, the Services, and DOD Agencies.

Year One

Getting Started

- Convene a DOD-wide (Services, Joint Staff, and DOD Agencies) senior leadership forum to explore the development of adaptability as an essential military capability. The forum would seek to:
  - Achieve consensus on a clear definition of adaptability
  - Identify the skills, competencies, and attributes that characterize adaptable performance at various organizational levels and with specific venues
  - Establish a framework for developing an integrated roadmap and initial POA&Ms for adaptability training initiatives

Leadership and Management

- Designate a senior person in OSD to oversee an adaptability development initiative. Provide a program executive officer subordinate to the senior leader who will insure day-to-day coordination of Joint, Service, and Agency initiatives and follow-up on the details of any OSD sponsored programs.
- Establish an enduring leadership group, composed of senior Joint, Service, and Agency leaders, to facilitate the coordination and resourcing of training programs

necessary to sustain a long-term commitment to making DOD and its people increasingly more adaptable.

- Establish Joint, Service, and Agency planning cells responsible for estimating and updating resource requirements to support all aspects of adaptability development, including support to research and development (R&D), experimentation, training, education, and personnel management.
- Establish a senior level panel to provide oversight of Research and Development programs in support of adaptability training.
- Designate an advocate for Red Teaming across DOD

Planning

- Develop an initial roadmap for an ongoing process of adaptability development, with clear-cut responsibilities and, where appropriate, deadlines.

Year Two

Leadership and Management

- Conduct a review of initial training and training continuums for each warfare community within each Service to insure that the basic professional skills to support adaptability training are being established and maintained.

Planning

- Develop plans for a research and development program, to include:
  - Design Studies—how best to train adaptability
  - Transfer Studies—the effect of adaptability training on performance in the operational environment
  - Measurement Studies—to develop metrics that will measure the effects of adaptability training and the effectiveness of adaptability training tools
  - Organizational Studies—how the DOD culture and structure, including policies, can better foster adaptability
  - Technology Development Studies—use of technology in training adaptability
- Update the initial process roadmap for adaptability development
- Establish and implement Joint, Service, and Agency adaptability training strategy POA&Ms
- Develop a plan to coordinate the employment of resources to promote adaptability.

- Establish an extended program of "crucible–type" adaptability training exercises uniquely tailored for Service and Joint audiences and designed to demonstrate the efficacy of various training methodologies by providing formal adaptability training modules for each of the training levels/groups depicted in Figure 5, section IV of the basic document.
  - Establish a phased, multi-year implementation plan for developing prototype exercises for each of the forty-five separate training audiences—nine levels and categories of training depicted in Figure 5, Section IV for each of the four Services (36 exercises) and for nine selected Joint audiences (9 exercises).
- Establish an extended program to make adaptability training a component of existing Tactics, Techniques, and Procedures (TTPs) training, where appropriate, and a definitive element in the design of major exercises.
- Begin to develop Joint, Service, and Agency education strategies, or to modify existing education strategies, insuring that they include development of adaptability-related cognitive and relational skills.
- Develop a coordinated cross-Service plan for the development of language expertise within DOD.
- Develop a long-term and coordinated plan for enhancing intercultural understanding across DOD, to include foreign, interagency, and non-governmental cultures, through programs of education, training, and personnel assignments
- Collaborate with the Australian Army to develop a program designed to train Complex Decision Making.
- Conduct the planning necessary to establish a Red Teaming capability across DOD.
- Develop a strategic communication plan to advance development of adaptability as a DOD-wide goal.

Training and Education

- Identify, through a collaborative process with the academic institutions involved, initiatives to make development of critical thinking an integral aspect of all education courses at the military academies, the war colleges, the Navy Postgraduate School, all Reserve Officer Training Corps (ROTC) programs, all intelligence training programs, and other formal education programs.
- Formulate programs for enhancing both verbal and written communication skills in all DOD academic settings.
- Institute a Red Teaming capability across DOD. Identify Red Team best practices and foster Red Team concepts throughout DOD.

Research and Development

- Commence a review of all officer communities, enlisted skill areas, and billet types to identify where adaptability learning initiatives will provide the greatest impact on operational performance.
- Develop and conduct an adaptability training validation tailored to one of the training audiences depicted in Figure 5, Section IV.

Review and Assessment

- Conduct an end-of-year review of roadmap status and update the roadmap.

Years Three and Four

Leadership and Management

- Conduct formal reviews to insure incorporation of adaptability training and education in all previously designated venues.
- Develop an annual estimate of the resources necessary to support all aspects of adaptability development, including support for experimentation, training, education, personnel, and research and development.
- Determine whether current Service career development practices ensure that development of adaptability skills is one focus of those practices and that adaptable performance at all levels is recognized and rewarded.
- Insure DOD-wide coordination in adaptability-related research.
- Establish a task force to determine where technology can be utilized to facilitate or enhance adaptability training and where training technology currently in use can be applied in new venues in all Services.
- Provide oversight for the development of a Red Teaming capability, Red Team support, and qualification criteria for Red Team personnel, and for the deployment of Red Team assets, fostering Red Team concepts, and identification of Red Team best practices throughout DOD.

Planning

- Identify training commands where the addition of training specialists, educational specialists, or social scientists is required to design or modify training programs to include adaptability training.
- Design a billet allocation plan for the efficient employment of social scientists to conduct research on adaptability learning, to design adaptability training, and to participate in conducting adaptability training.

- Plan enhancements or, where necessary, creation of programs designed to prepare professors, instructors, trainers, and mentors to teach, train, and foster adaptability skills.
- Review existing billet structure in support of exchange assignments and other immersion experiences in foreign cultures and with other government agencies. Develop a plan for enhancing these opportunities and identify the resource requirements to support the plan.

Training and Education

- Over the two year period, develop and conduct a minimum of five adaptability training exercises per year focused on additional training audiences. (A matrix of the nine audiences in Figure 5, Section IV applied to each of the four Services and the Joint Community provides a total of forty-five unique training audiences.) Insure that the range of exercises matches the range of military operations (ROMO) and that the exercises incorporate overarching adaptability training principles. Insure that at the end of the fourth year all of the Services and the Joint Exercise Community have each conducted at least one validation.
- Execute an extended program to make adaptability training a component of existing TTP training, where appropriate, and a definitive element in the design of major exercises.
- Develop and put into practice methodologies that the operating forces can use to conduct operational reviews that will enhance adaptability.
- Implement initiatives to make development of critical thinking an integral aspect of all education courses at the military academies, the war colleges, the Navy Postgraduate School, all ROTC programs, all intelligence training programs, and other formal education programs.
- Implement programs for enhancing both verbal and written communication skills in all DOD academic settings.
- Execute a cooperative program with the Australian Army to develop and conduct training related to Complex Decision Making.

Research and Development

- Begin multi-year implementation of R&D programs on design, transfer, measurement, organization, and technology utilization.
  - Conduct research on the best methods of teaching and training adaptability and the components of adaptability.
  - Conduct research to determine the effect of adaptability training on performance in the operational environment.

  - Develop metrics to measure adaptability and the development of adaptability through various interventions.
  - Conduct studies to determine the extent to which DOD culture and structure, including policies, can better promote adaptability.
  - Conduct research to determine ways in which technology can facilitate adaptability training
  - Develop metrics to measure the effectiveness of adaptability training tools.
- Research the science of learning, with particular emphasis on adaptability learning.
- Identify the skills, knowledge, and attributes (SKA) associated with team decision-making, teamwork, and team leadership, as well as the methodologies to train those SKAs.
- Research and develop simulations, serious games, and technology-driven exercises focused on teaching adaptability specifically in the DOD environment.
- Develop Leader Development Games and Exercises and Leader Team Games and Exercises.
- Develop methodologies for assessing the impact of improvement in adaptability component skills on overall adaptability.
- Research the field of neuroscience with a focus on improving cognitive performance and measuring the effectiveness of training interventions designed to enhance adaptability.
- Develop peer and hierarchical collaboration forums, drawing on Service knowledge management best practices.
- Begin development of affordable assessment programs, such as 360-degree evaluations, designed to enhance self-awareness.

Review and Assessment

- Conduct a review of all officer communities to validate the existing quality of training in foundational professional skills, warfighting fundamentals, and leadership skills. Identify any significant shortfalls.
- Identify and review selected adaptability-related training and education billets to verify that qualified personnel are assigned to the billets.
- Review assignment practices and promotion policies to insure that qualified personnel are assigned to training and education billets and are rewarded appropriately for superior performance in those billets.
- Establish an ongoing review to determine where Technology-Based Training (adaptive and distributable) can be utilized to facilitate or enhance all training, including adaptability training. Particular attention should be given to utilizing

and expanding the Joint National Training Capability and the Joint Knowledge Development and Distribution Capability.

- Conduct annual review of adaptability training conducted to date in order to capture lessons learned and to distill training and education principles that may be applied to follow-on training on a broad basis.
- Conduct an annual end-of-year review of roadmap status and update the roadmap.
- Conduct an annual end-of-year review and update individual POA&Ms.
- Conduct an annual assessment of efforts to coordinate the employment of DOD resources devoted to developing adaptability.
- Conduct an annual review of progress made in developing language expertise across DOD.
- Conduct an annual assessment of the strategic communications plan and update the plan.
- Conduct a formal assessment at the end of the two-year period to evaluate exercise results and formulate the details of follow-on year exercise plans.

Subsequent Years

Leadership and Management

- Conduct formal revues to insure incorporation of adaptability training and education in all previously designated venues.
- Provide an annual estimate of the resources necessary to support all aspects of adaptability development, including support for experimentation, training, education, and personnel.
- Oversee Service career development practices to ensure that development of adaptability skills is one focus of those practices and that adaptive performance at all levels is recognized and rewarded.
- Insure DOD-wide coordination in adaptability-related research.
- Provide oversight of Red Teaming, Red Team support, qualification criteria for Red Team personnel, and deployment of Red Team assets, fostering of Red Team concepts, and identification of Red Team best practices throughout DOD.

Planning

- Continue an extended program to make adaptability training a component of existing TTP training, where appropriate, and a definitive element in the design of major exercises.

Training and Education

- Develop and conduct a minimum of five adaptability training exercises per year focused on additional training audiences. (A matrix of the nine audiences in Figure 5, Section IV applied to each of the four Services and the Joint Community provides a total of 45 unique training audiences.) Insure that the range of exercises matches the ROMO and that the exercises incorporate overarching adaptability training principles.
- Continue an extended program to make adaptability training a component of existing TTP training, where appropriate, and a definitive element in the design of major exercises.
- Continue to develop and practice methodologies that the operating forces can use to conduct operational reviews that will enhance adaptability.
- Continue, for as long as productive, a cooperative program with the Australian Army to develop and apply training related to Complex Decision Making.

Research and Development

- Continue research on the science of learning, with particular emphasis on adaptability learning.
- Continue research into the best methods of teaching and training adaptability and the components of adaptability.
- Continue research to determine the effect of adaptability training on performance in the operational environment.
- Continue to research and develop simulations, serious games, and technology-driven exercises focused on teaching adaptability specifically in the DOD environment.
- Continue research to identify the SKAs associated with team decision-making, teamwork, and team leadership, as well as the methodologies to train those SKAs.
- Continue to develop metrics to measure adaptability and the development of adaptability through various interventions.
- Continue to develop methodologies to assess the impact of improvement in adaptability component skills on overall adaptability.
- Continue to develop metrics to measure the effectiveness of adaptability training tools.
- Continue research in the field of neuroscience focused on improving cognitive performance and measuring the effectiveness of training interventions designed to enhance adaptability.

Review and Assessment

- Annually review adaptability training conducted to date in order to capture lessons learned and to distill training and education principles that may be applied to follow-on training on a broad basis.
- Conduct an annual end-of-year review of roadmap status and update the roadmap.
- Conduct an annual end-of-year review and update individual POA&Ms.
- Conduct an annual assessment of efforts to coordinate the employment of DOD resources devoted to developing adaptability.
- Continue an ongoing review to determine where Technology-Based Training (adaptive and distributable) can be utilized to facilitate or enhance all training, including adaptability training.
- Review assignment practices and promotion policies biennially to insure that qualified personnel are assigned to training and education billets and are rewarded appropriately for superior performance in those billets.
- Conduct a biennial review of selected adaptability-related training and education billets to verify that qualified personnel are assigned to the billets.
- Conduct a biennial review of progress made in developing language expertise across DOD.
- Conduct a biennial review of efforts in all DOD academic settings to enhance critical thinking.
- Conduct a biennial assessment of progress in developing intercultural understanding at all levels throughout DOD.
- Conduct a biennial assessment of progress in developing a broad reserve of language capability throughout DOD.
- Assess and update the strategic communications plan annually.
- Conduct a formal assessment biennially to evaluate exercise results and identify lessons learned to be applied in subsequent exercises.
- Upon completion of the experiment and exercise program, publish a compendium of the overall results, including lessons learned and adaptability learning principles distilled.

Appendix D.
Policy Analysis

The following is a summary of the IDA team's detailed review of DOD documents that appeared to contain policy relevant to adaptability training.

A. Documents Reviewed

Department of Defense Directive 1322.18, Military Training, January 13, 2009

Department of Defense Training Transformation (T2) Implementation Plan FY2006-FY2011, February 23, 2006

Joint Training Functional Concept, Version 1.0, August 14, 2007

Strategic Plan for Transforming DOD Training, February 5, 2009

Department of Defense Instruction 1322.mm, Implementing DOD Training (DRAFT) (February 26, 2010)

Strategic Plan for the Next Generation of Training for the Department of Defense (DRAFT) (January 20, 2010)

B. Review Findings

1. Department of Defense Directive 1322.18, Military Training, January 13, 2009

There is nothing in this directive that alludes to adaptability training.

2. Department of Defense Training Transformation Implementation Plan FY2006-FY2011, February 23, 2006

In the introductory comments of this 207-page document, there is a discussion that would appear to foreshadow efforts to develop adaptability. It begins by stating; "The overall challenge for the Department of Defense is to contend with uncertainty by adapting to circumstances and influencing events."[1] It goes on to identify as one of the five key objectives of the Training Transformation Program: "Develop individuals and organizations that improvise and adapt to emerging challenges,"[2] and states that achieving that and other objectives "…requires preparing the DOD Components to learn,

[1] Department of Defense Training Transformation Implementation Plan FY2006-FY2011, February 23, 2006, 3.

[2] Ibid., 6.

improvise, and adapt to constantly changing threats and conditions in addition to executing doctrine to standards."[3] The plan does not define adaptability or explain how it will develop adaptability, other than to say it will be done through education and training. It does refer to building adaptable training systems. Its real focus is on building specific training capabilities and identifying gaps in training capabilities. The goal is to ensure that joint forces have trained and rehearsed in preparation for known challenges. It envisions a lessons learned process that keeps abreast of emerging challenges. It does not address preparing individuals, units, and teams of leaders to adapt to what they have not trained for and for the unpredictable. The document is designed to create a process for resource allocation in the world of joint training. Its focus is on the Joint Knowledge Development and Distribution Capability (JKDDC), the Joint National Training Capability (JNTC), and the Joint Assessment and Enabling Capability. It envisions allocating resources to support technical systems and training infrastructure. In other words, it is part of a business strategy that incorporates allocation of resources for training into the larger planning and resource management process.

3. Joint Training Functional Concept, Version 1.0, 14 August 2007

While the Joint Training Functional Concept (JTFC) is not focused on adaptability, it spells out goals for training and otherwise developing adaptability, specifies actions required to achieve those goals, and addresses the need for metrics to measure the effectiveness of actions taken to develop adaptability. The genesis of the document is a mandate from Secretary Rumsfeld contained in the 2003 Transformation Planning Guidance:

> *As we prepare for the future, we must think differently and develop the kinds of forces and capabilities that can adapt quickly to new challenges and to unexpected circumstances. We must transform not only the capabilities at our disposal, but also the way we think, the way we train, the way we exercise and the way we fight. We must transform not only our armed forces, but also the Department that serves them by encouraging a culture of creativity and prudent risk-taking. We must promote an entrepreneurial approach to developing military capabilities, one that encourages people to be proactive, not reactive, and anticipates threats before they emerge.*[4]

The result is a concept that "…describes how the joint force, 8–20 years into the future, will perform training to prepare individuals and organizations to conduct operations across the range of military operations (ROMO)."[5] Explicit in IDA's

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[3] Ibid.

[4] Transformation Planning Guidance, Department of Defense, 2003, 1.

[5] Department of Defense, "Joint Training Functional Concept Version 1.0," 14 August 2007, 1.

recommendations for developing adaptability is the requirement to prepare individuals, teams, and units for full spectrum operations.

The JTFC focuses on two central ideas:

- Revising or Creating New Joint Training Processes
- Strengthening the Joint Training Global Environment

The JTFC addresses overarching support related to both central ideas, as well as supporting ideas and associated capabilities unique to each. Several of the overarching supporting ideas are directly related to IDA's concept for developing adaptability:

- A career-long training and learning continuum
- A joint culture of adaptation to new situations, information, and lessons learned
- Inculcation of joint culture and habitual relationships
- A holistic approach—integration of training with other personnel actions
- Collaboration with non-DOD organizations[6]

The JTFC states that a "key goal is outcome-oriented training that focuses on improved operational performance."[7] This suggests utilizing the concepts of output based training, which is aimed at developing adaptive performance.

The JTFC calls specifically for developing "The ability of individuals, units, and staffs to modify their behavior quickly and appropriately when circumstances change in ways for which they have not been specifically trained."[8] This comports well with the definition of adaptability used in this study: the operable capacity to bring about an effective response to an altered situation.

The JTFC envisions ideas directly supportive of adaptability development:

- Training and education for both analytical and intuitive decision making
- Providing incentives to individuals, units, and organizations to learn
- Measuring the outcome of training—learning and capability—not just the inputs
- Encouragement of peer-to-peer learning as well as mentoring for units and individuals[9]

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[6] Ibid., 12.

[7] Ibid., 2.

[8] Ibid., 18.

[9] Ibid., 8.

One of several supporting ideas contained in the concept is that joint training processes must provide an "Appropriate focus on all echelons of the force across all organizations and all levels of war."[10] This is consistent with the IDA Adaptability Learning Concept that illustrates the need to provide adaptability training at the individual, team, and unit level, throughout a career and for every size organization. The IDA concept also emphasizes that adaptability is required at all levels of war—tactical, operational, and strategic.

The JTFC also specifies an attribute that can be used to assess the effectiveness of training transformation with regard to insuring the right training is delivered to the right audience at the right time:

> Training a force to perform a task means delivering the appropriate training to every appropriate unit and individual from entry-level soldier, sailor, airman, and marine to the combatant commander.[11]

A second supporting idea is that training requirements are mission-driven and that new joint training processes should have:

> The ability to train all military personnel, irrespective of rank or position, to accept a military culture of doctrinal understanding, adaptability, and personal responsibility for mission accomplishment, and one that emphasizes innovative solutions in unprecedented situations.[12]

The JTFC addresses the importance of developing a culture of adaptability. The concept is specific in calling for a system that produces a "joint culture of adaptation…[that]…involves developing both adaptable individuals and adaptable systems."[13] It identifies as associated capabilities:

> The ability to produce a military culture that values, rewards, and develops adaptability to unexpected circumstances. This capability is needed for all echelons of the joint force (individuals, units, and staffs) and should reinforce the need for leaders to trust subordinates who have been properly trained to be adaptive.
>
> The ability to reward initiative and appropriate risk taking. The system must avoid insisting on rigid adherence to known solutions and to accommodate honest errors in order to encourage innovation and adaptability.[14]

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10 Ibid., 12.

11 Ibid., 21

12 Ibid., 13.

13 Ibid., 18.

14 Ibid., 18-19.

> The ability to implement outcome-based processes that reward both trainees and trainers for effective training.[15]

Trust of subordinates, valuing effective trainers, and rewards and incentives for adaptive performance are keys to developing both adaptable individuals and adaptable organizations.

A third supporting idea contained in the concept is the need for career-long training and a learning continuum. The concept specifically calls for capabilities related to the development, in a holistic manner, of both the cognitive and relational skills illustrated in the IDA model of adaptability:

> The ability to prepare senior officers for complex decision-making at the most senior joint levels. All appropriate DOD personnel must master the three competencies required for joint command and staff responsibilities: functional core competency of fighting a joint force, strategic viewpoint, and critical thought. These joint competencies will be taught by the four supporting pillars of the joint learning continuum: joint professional military education, joint individual training, joint experience, and self-development
>
> The ability to ensure that DOD personnel learn the empathetic, cultural, and language skills appropriate to their positions throughout their careers.[16]
>
> The ability to develop enhanced abilities, including language, to empathize with and understand civilians, other organizations, and social forces within an area, culture, and people involved in ongoing or potential political or military conflict.[17]
>
> Provide a full-participation training regimen to support DOD collaboration with inter-agency, inter-governmental, multinational, and non-governmental organizations. This includes education and training of DOD and non-DOD participants on each others' roles and capabilities and the sharing of knowledge with external partners such as the Department of Homeland Security.[18]

In particular, this IDA study emphasizes that recognition of the roles played by education, training, and experience and their interrelationship is essential to a strategy for developing adaptability.

The JTFC not only recognizes that a holistic approach to developing adaptability is required, but that such an approach goes beyond even training, education, and experience.

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15 Ibid., 14.

16 Ibid., 17.

17 Ibid., 18.

18 Ibid., 20.

It expressly states the necessity of "…coordinating joint training and education with service personnel actions and processes, such as recruitment; effective personnel screening; and occupational assignment, retention, and rotation."[19]

Adaptability training and education require an appreciation of the science of learning. The JTFC acknowledges this when it calls for "The ability to integrate training specialists and subject matter experts to create the most effective training for joint force individuals, units, and staffs."[20]

Until the training validations conducted as part of the current study, the military could point to no instance where metrics had been used to assess purpose-designed adaptability training. This JTFC recognizes the need for metrics and assessments to insure that training is producing the desired outcomes. Specifically, it calls for metrics that measure the extent to which training promotes adaptability and metrics that insure training transfer—that what is trained is retained and used in the operating environment.

Very significantly, the JTFC acknowledges that the best ways of improving adaptability have not been identified, the importance of experimentation, and the potential of employing the science of learning in efforts to improve training.

High-priority areas for experimentation include:

> Training individuals and units in adaptability. Improving training in this area was a major recommendation of the 2005 Training Transformation Assessment.[21] While there is ongoing training that focuses on increasing how quickly and effectively training audiences identify unexpected situations and solve the operational problems presented, the best ways of improving adaptability in various circumstances have not been identified. This calls for experimentation.[22]
>
> The proper approach to training will likely depend on the nature of the implementation strategy and should also be subject to experimentation. In addition, the learning sciences may identify multiple ways to improve training…Experimentation with alternative teaching, training, and other methodologies will shape an adaptive and innovative military culture…Areas where current training is felt to be flawed are particularly appropriate for experimentation. Examples of such areas may include training for improved adaptability, training that encourages risk taking,

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19 Ibid., 19.

20 Ibid., 15.

21 Department of Defense, *2005 Training Transformation Assessment, Joint Assessment and Enabling Capability,* December 2005, S-7.

22 Department of Defense, "Joint Training Functional Concept Version 1.0," 55.

> provision of incentives to learn, and training to enhance empathy and cultural awareness.[23]

While the concept provides a clarion call for developing adaptability and articulates a number of skills that are related to adaptability, it does not specifically define adaptability or enumerate the specific skills that are associated with adaptability. Establishing such a foundation could contribute significantly to advancing ideas associated with the development of adaptable individuals and a culture of adaptability.

In summary, while the focus of the JFTC is not adaptability training, the document goes a long way towards describing what is required in order to train and otherwise develop adaptability. It addresses specific cognitive and relation skills, the need for a holistic approach that includes personnel policies, and the employment of metrics to measure training effectiveness and progress. If a document first defined adaptability and specified the skills required in order to enhance adaptability, it could draw heavily on the JTFC to prescribe policy and strategies for developing adaptable individuals, teams, and units and an attendant culture of adaptability.

4. Strategic Plan for Transforming DOD Training, February 5, 2009

This document clearly states as an objective the need to learn to adapt to unpredictable challenges:

3.3.2. Objective: Develop individuals and organizations that improvise and adapt to emerging challenges

> This T2 [Training Transformation] objective postulates indeterminate or asymmetric situations where individuals and organizations must improvise and adapt. In this case, knowledge, skills, and abilities to perform mission essential tasks and understand doctrinal principles remain paramount, because they form the foundation for the capability to adapt to unpredictable situations. This objective requires training and education to provide a joint doctrinal foundation to the Total Force and ensure it has the opportunities, tools, and environment needed for learning to adapt to unpredictable challenges. In order to determine T2's progress toward achieving these objectives JAEC [Joint Assessment and Enabling Capability] will focus on J/AMET [Joint/Agency Mission Essential Tasks] and doctrine training, and work to develop new methods to assess the effectiveness and efficacy of adaptability training.[24]

This objective correctly observes that the knowledge, skills, and abilities to perform mission essential tasks are fundamental to developing adaptability, and it clearly recognizes the need for metrics to assess the effectiveness of adaptability training. What

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[23] Ibid., 30.

[24] Department of Defense, Strategic Plan for Transforming DOD Training, February 5, 2009, 11.

it does not address are the skills required to employ those foundational tasks adaptively in response to a changed situation.

So while the Strategic Plan frequently mentions adaptability, it does not define adaptability, does not suggest what, other than mission essential tasks and doctrinal principles, needs to be trained to make one adaptable. Instead it focuses on lessons learned and discusses *adapting training* in response to new threats. The emphasis is on the speed and agility of the training process. The basic concept of the strategic plan is that the joint force and individuals will be prepared to adapt to new challenges as a result of being trained for those new and specifically known (not unpredictable) challenges by an agile training system capable of rapidly modifying what is being trained and delivering the training worldwide.

> To maintain an adaptive and capable joint force, we cannot depend on a reactive training enterprise. A strictly reactive training strategy would lead to adversaries preempting our Department's capabilities and defeating our forces. In contrast, a proactive training enterprise relies on rapidly implementing lessons learned, anticipating operational training needs and continuously adapting our training practices and technologies in order to quickly deploy and employ prepared forces.[25]

The plan does not provide a strategy for training individuals and the joint force so that they will be prepared to adapt to unpredictable challenges. It is not a prescription for training adaptable individuals. The plan frequently mentions cultural knowledge, language skills, and regional awareness (all adaptability-related skills); but it does not offer any guidance on how to allocate scare resources so that an appropriate group of people might gain mastery in these areas.

The strategy provides investment guidance, but that guidance does not relate to the specific goal of training adaptable individuals or units.

5. Department of Defense Instruction 1322.mm, Implementing DOD Training (DRAFT) (February 26, 2010)

This document explicitly identifies developing adaptable forces as a policy goal. The following are excerpts from the basic document that are relevant to that goal:

POLICY. It is DOD policy that:

DOD training shall result in forces that:

> Can operate effectively in a physically and culturally complex global operating environment characterized by persistent conflict between nation state, non-nation state, and hybrid actors.

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[25] Ibid. 14.

> Are adaptive and agile; possessing a high degree of cognitive skills (intuition, complex decision making, and critical and creative thinking), relational skills (individual and team skills), mental and physical resilience, cultural literacy, and language capabilities.
>
> Possess balanced capabilities across major combat operations, irregular warfare that includes counterinsurgency, unconventional warfare, foreign internal defense, stability operations, and counter terrorism; and can effectively prevent and respond to catastrophic weapons of mass destruction events across the operational categories of offense, elimination, interdiction, active and passive defense, consequence management, security cooperation and partnership, and threat reduction cooperation.
>
> Can effectively operate in harmony with interagency, multinational, non-Governmental, and private sector partners to achieve unity of effort.
>
> Training Transformation (T2) is focused on the vision of providing dynamic, capabilities-based joint training for the Department of Defense in support of national security requirements across the full spectrum of Service (Active and Reserve Components), joint, interagency, intergovernmental (State and local), and multinational operations to:
>
> Emphasize across the full spectrum of operations the development of individuals and organizations that are agile in improvising and adapting to emerging crises responsive to the CCDRs' [Combatant Commanders'] needs.
>
> The T2 program shall better enable joint and integrated operations by facilitating the alignment of joint education and training capabilities and resources with Combatant Command operational needs to:
>
> Enable the continuous adaptation of the Department of Defense to address today's and tomorrow's threats.[26]

The skills listed in conjunction with adaptive and agile forces are in complete concert with the IDA model of adaptability. Adaptability is domain specific, and the military domain is the ROMO. The description of balanced capabilities reflects the need to be able to perform adaptively across the ROMO. The requirement to be able to operate in harmony with non-DOD organizations reflects IDA's basic concept for training that includes adaptability training for teams and units in a Joint, Interagency, Intergovernmental, Multi-National environment. In addressing the adaptation of DOD to current and future threats, the document acknowledges the need for adaptability not just at the tactical level and operational level, but at the strategic level as well.

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[26] Department of Defense, Department of Defense Instruction 1322.mm, Implementing DoD Training (DRAFT) (February 26, 2010), 1-3.

In assigning responsibilities for establishing training policies, the document acknowledges that developing adaptability is not just a training issue, but a career development issue, and that developing adaptability requires incentives. The document also makes explicit the need to factor adaptability learning into training and education curricula across a continuum. One cannot become adaptable by taking a single course or going through one training program. In Enclosure (2), the draft instruction assigns responsibilities as follows:

> Under Secretary of Defense for Personnel and Readiness (USD(P&R)). The USD(P&R) shall:
>
> Modify career development policies to reward innovative, agile, and adaptive individuals.
>
> Establish training and education policies that promote adoption of adaptability curriculum across the DOD Learning Continuum.[27]
>
> The document assigns responsibilities for a strategic plan for training and for implementing policies that promote adoption of adaptability curriculum:
>
> [Deputy Under Secretary of Defense for Readiness (DUSD(R))]: The DUSD(R), under the authority, direction, and control of the USD(P&R), shall:
>
> Biennially revise the Strategic Plan for the Next Generation of Training for the Department of Defense.
>
> Lead implementation of training and education policies that promote adoption of adaptability curriculum across the DOD learning continuum.[28]

The document further assigns specific responsibilities for creating effective learning continuums and incentives for engagement in the continuous learning necessary to enhance adaptability:

> Heads of the DOD Components: The Heads of the DOD Components shall:
>
> Synchronize education and training to optimize the learning continuum effectiveness, both internally and externally, to the Component.
>
> Provide incentives to individuals, across all echelons, who are committed to continuous learning. [29]

Adaptability requires mastery of the fundamental tactics, techniques, and procedures necessary for operations across the ROMO in the Joint Operating Environment. This

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[27] Ibid., 9-10.

[28] Ibid., 10-11.

[29] Ibid., 12-13.

document holds the Service Secretaries responsible for insuring the operating forces maintain standards in their core competencies:

> Secretaries of the Military Departments. The Secretaries of the Military Departments, in addition to performing the responsibilities in section 6 of this enclosure, shall:
>
> Preserve the existing high standards of excellence in Service core-skills training and training for major combat operations, in balance with capabilities associated with irregular warfare and catastrophic threats.[30]

The document would be strengthened with a statement that assigns an additional responsibility to the Service Secretaries that is commensurate with one assigned to the USD(P&R) and to the DUSD(R):

> Establish training and education policies that promote adoption of adaptability curriculum across the DOD Learning Continuum.

Enclosure (3), which describes procedures, provides further guidance for developing a more adaptable force:

> Adaptability Training. Adaptability training programs shall:
>
> Create and train general-purpose forces capable of operating independently at increasingly lower echelons.
>
> Organize and train in "purpose-built" small units which possess the right mix of skill sets and cognitive, social, and adaptive capabilities. Make all effort to sustain team integrity once formed.
>
> Train forces in a culture of adaptability and flexibility. Foster pride, confidence, and competition among units in their ability to rapidly reconfigure to new missions. Encourage free play in training, including unanticipated mission set changes.
>
> Train units to be constantly aware of their surroundings and recognize and take initiative on their own to transition to a new mission set. Reward such behavior in training and operationally.
>
> Improve Service and institutional adaptability to deal with rapid change.
>
> DOD Component education and training curriculums shall develop and leverage new human behavioral sciences. These sciences include: complex decision making, cognitive thinking, adaptability, cross-cultural understanding and negotiation, chaos theory, and cognitive readiness for net-centric operations.
>
> Develop and implement a DOTMLPF [Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities] "adaptive" initiative which

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[30] Ibid., 14.

fundamentally changes the way the Services are institutionally organized and trained.[31]

DOD training methods shall:

Develop leaders who are masters of the operational art by:

Linking education and training to enable cultural change.

Train a balanced force by:

Balancing training for irregular, conventional, and catastrophic warfare.

Enabling forces to learn to adapt during training rather than during conflict.[32]

The introduction of new DOD training policies demands a revised understanding of the key objectives of T2 …Five key objectives support the mission to better enable joint operations:

Continuously improve joint force readiness by aligning joint education and training capabilities and resources with Combatant Command operational needs.

Achieve a training unity of effort across Services, agencies, and organizations.

Develop individuals and organizations that intuitively think jointly.

Prepare forces for new warfighting concepts and capabilities.

Develop individuals and organizations that improvise and adapt to emerging challenges.[33]

As the Department of Defense adapts military training to contemporary operations, it will continue preserving the existing high standards of excellence in service core-skills training, and applying these skills to build balanced capabilities across the Department, as well as in interagency, intergovernmental, and multinational venues. Joint and integrated education, training, and the personnel assignment process will be recast as components of lifelong learning through the creation of a joint learning continuum. Joint training will become synonymous with accredited training programs at sites using certified systems. Integrated joint training will occur through the synchronization of training programs, objectives, and schedules; and inclusion of participants from outside the Department of Defense.[34]

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31 Ibid., 18-20.

32 Ibid., 20-21.

33 Ibid., 24.

34 Ibid., 28.

In summary, the goal of this document is to develop an adaptive force and an adaptive institution. It assigns responsibilities for developing and implementing policies to achieve those goals. The document refers to specific adaptability related skills, but it does not specifically define adaptability or attempt to provide a comprehensive list of skills that contribute to overall adaptive performance. Defining adaptability and identifying specific adaptability-related skills should be considered the first step in any effort to provide policy guidance relevant to the subject. Developing a more adaptable force and institution will require a strategic plan. This document addresses a strategic plan for the next generation of training. While it is recognized that this is a training document, a strategic plan to develop more adaptable forces will need to be more broadly drawn, addressing education and career development as well as training. Ultimately, a policy designed to enhance adaptability will require metrics to determine the effects of any actions in support of the policy. The document requires both the Service Secretaries and the Combatant Commanders (COCOMs) to:

> Provide data to support the assessment of military training and assist in the development of future assessment requirements by providing advice and feedback regarding metrics to reflect the activities and benefits of the T2 program.[35]

To meet the objectives of this document, metrics will be required that measure adaptability, the impact of specific interventions on the enhancement of adaptability and adaptability-related skills, and the effects of adaptability training and education on operational performance in the field. Finally, this document does not address research and development (R&D) as it relates to efforts to enhance adaptability. An R&D program will be required to develop adaptability training and education methodologies and the means to assess their effectiveness.

It should be noted that this document will cancel the Department of Defense Training Transformation Implementation Plan FY2006-FY2011.

6. Strategic Plan for the Next Generation of Training for the Department of Defense (DRAFT) (January 20, 2010)

This document seeks to establish "a foundational strategy for use by the DOD Components"[36] to develop and implement joint training with interagency, intergovernmental, nongovernmental and multinational partners in support of integrated operations. Its target audience is the federated training community's three-star leadership. The document emphasizes the need to adapt, the importance of a culture of adaptability,

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35 Ibid, 14-15.

36 Department of Defense, Strategic Plan for the Next Generation of Training for the Department of Defense (DRAFT) (January 20, 2010), 1.

and training that promotes the development of adaptive capabilities and skills. Specifically, it addresses the need to develop proficiency in basic job skills, intuition, critical thinking, self-awareness, and a variety of interpersonal and social skills. It emphasizes the need for training that deals with complexity, takes students outside their comfort zones, and requires decision-making under pressure. It acknowledges the important role to be played by the behavioral sciences. It calls for a training continuum that reaches from the individual level to the COCOM staff. Importantly, it acknowledges the interrelationship of training, education, and experience, the need to develop a learning organization, the important role to be played by trainers and educators, and a requirement to reward adaptable individuals. The following is a distillation of the contents of the document focused on developing adaptability.

Purpose

This document provides strategic guidance that:

Sets the conditions for revolutionary advancements in training through a culture change supported by training, education and experience.

Adjusts the training and education strategy based on recent lessons learned.[37]

Strategic Guidance. This document is established as a foundational strategy for use by the DOD Components. It is designed as strategic guidance for the Federated Training community staffs and their 3 Star-level General, Flag, and Civilian leadership.

Assumptions…this document serves as a catalyst to sustain and grow our training superiority and to stimulate the development of new initiatives unforeseen by this strategy to ensure the total force remains relevant, agile and adaptive…Key throughout the document is adaptation. This is not merely a desired trait, but rather it is an essential aspect of all areas of the federated enterprise and indeed our society. Failure to adapt quickly to the changing nature of warfare and society risks reduction in capability and loss of relevance.[38]

The Military Training Problem

[T]he DOD must be able to effectively and efficiently prepare future training audiences with limited fiscal, time, material and personnel resources… the *Capstone Concept for Joint Operations* (CCJO) envisions a future operating environment characterized by uncertainty, complexity, rapid change and persistent conflict…As current operations, major materiel acquisitions and personnel related expenses continue to consume

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37 Ibid.

38 Ibid. 1-2.

an increasing portion of defense budgets, funding for training will face significant budget pressures. Training facilities and other resources may often be underfunded…

In summary, the Department of Defense training enterprise must prepare the total force to accomplish an increasing diversity of increasingly complex missions requiring an ever-changing combination of combat, security, engagement, and relief and reconstruction activities. Numerous factors make this extremely challenging, not least of which are the combination of increasing operational demands and decreasing resources and rapid and fundamental changes in operational and training technologies.[39]

The Department of Defense Training Concept

Training on foundational technical skills, tactics, techniques and procedures is crucial. However, mission specific skills such as combat hunting or training to hone cognition, adaptability, team cohesion, empathy, culture and language are equally crucial. To achieve these objectives we must leverage emerging technologies to enhance our training capabilities, we must be relevant, agile and adaptive, and we must anticipate and rapidly incorporate lessons learned. We can no longer depend solely on training programs and capabilities developed and managed in mutual isolation. We must sustain the uniqueness that each Service brings to table but from an investment and intellectual perspective, emphasize convergence, harmonization, unity of effort, and common organizational understanding. These aspects are essential to responding to ever tightening fiscal environments, increasing competition for air, land and maritime training resources and enduring conflict.[40]

Essential Features of a Technology-Based Training Environment

The long-term objective is to produce an immersive training environment that stimulates cognition, intuition, innovation and adaptive thinking and hones complex decision-making skills… to support the range of training objectives to which it will be applied, the federated training environment must:

Support civil affairs, language, culture and other human, social and behavioral skill requirements appropriate to a designated region.

Be sufficiently interoperable with interagency and multi-national partner capabilities to permit combined and whole-of government training.[41]

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39 Ibid. 2-5.

40 Ibid. 5.

41 Ibid. 6-7.

Major Training Requirements

A training continuum, from training of the individual, the small team, the unit, functional component, JTF [joint task force] and the combatant command.[42]

Training Integration

Training for [the four broad types of military activities—combat, security, engagement, and relief and reconstruction] therefore must include practice in integrating and adapting those activities to each other and a changing situational context… Specific requirements include:

Training for rapid operational transitions. The balance among the four military activities can change radically and repeatedly as the operational situation change, requiring the force to reorient itself quickly to new missions and conditions. Because ultimate success may depend on how quickly the force can adapt to these changes, training must enable a force prepared initially to conduct one activity to transform itself rapidly into a force prepared to conduct another—for example, from a force honed for combat into a security force, or vice versa.[43]

Training Focus Areas

Improve Knowledge of and Capabilities for Waging Irregular Warfare

Build immersive training environments. Key attributes may include:

Cognition-based immersive training environment that is fast paced, of sufficient duration to induce fatigue, and conducted in a controlled environment that allows for on-the-spot correction or a detailed debriefing of training audience performance (for both soft and hard skills). This immersive training environment must be institutionalized in order to build collective small team self-awareness, resilience and confidence in decision making under stress.

Specific small team cognitive decision making traits requiring training include: police-like intelligence capabilities, biometrics, "human terrain" analysis, cultural interactions and negotiation skills.

Train and exercise to the skills to support Security Force Assistance (SFA). This includes proficiency in functional or job skills, language and cultural, empathy, rapport building, advising, coaching, mentoring, and feedback and assessment.

Organize and train in purpose-built small teams that possess the right mix of skill sets and cognitive, social and adaptive capabilities.

Develop a training capability that produces a culturally aware and linguistically adept total force.

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42 Ibid. 7.

43 Ibid. 8-9.

Train to foundational cultural skills (including empathy, cross-culture negotiations, self reliance, securing basic needs in a foreign environment, adaptability, listening, building trust, etc.).

Train forces in a culture of adaptability and flexibility. Foster pride, confidence and competition among units in their ability to rapidly reconfigure to new missions. Encourage free play in training including unanticipated mission set changes.

Provide more opportunities for professional education exchanges between agencies and partners.

Actively create training opportunities for integrated civil-military operations, to include nation building, relief, reconstruction, stability and homeland defense.[44]

Develop Innovative and Adaptive Leaders Down to the Lowest Levels[45]

Innovative concepts for leader development are essential to revolutionary developments within the context of training and education. Training must put students in difficult, unexpected situations, and require them to decide and act under time pressure. They must be taught how to master complex decision-making skills. It must take students out of their comfort zones. Stressing of mental capabilities and moral fiber as well as physical fitness must be continual. Critical and cognitive thinking, war games, and free-play exercises must become the norm. Leaders who successfully complete this high intensity education and training process must continue to be developed by their commanders. Learning cannot stop at the schoolhouse door. Education and training should nurture and reinforce a leadership style that grants greater discretion to subordinates, creates a culture that is more tolerant of errors of commission than errors of omission and rewards those who exhibit these characteristics. Train leaders to remove hierarchical command and control impediments to encourage "speed of trust"[46] during operations.

Education and training curricula should adapt as necessary to develop and leverage new human behavioral sciences. There are several disciplines that would form the foundation for the reform of the current DOD leader education system. They include complex decision making, cognition, adaptability, cross-cultural understanding and negotiation, chaos theory, and cognitive readiness for commander-centric net-enabled operations.

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44 Ibid. 9-15.

45 *Capstone Concept for Joint Operations* (CCJO), v3.0 (Washington: Department of Defense, January 15, 2009), 28.

46 Steven M.R. Covey, *The Speed of Trust* (New York: Simon & Schuster, 2006).

Our forces must study military history as a science, carefully analyzing the decision making and strategies of great military leaders, adversaries, and organizations.

Train the joint commander in complex decision-making and interpersonal skills. Commanders must be trained to visualize operational problems embedded in the context of other problems and then to develop solutions that account for the indirect effects caused by the interaction of these embedded problems. They must be trained to be proficient in the application of interpersonal skills that create a command environment of empathy, cooperation and trust which is absolutely essential to operating effectively in the diverse panoply of Services, agencies, coalitions and nongovernmental organizations that exists in the joint operating environment.

Create optimized professional military education for the flag, general officer, and SES [Senior Executive Service] communities at all grades throughout their tenure.

Educate and train military and civilian leaders to understand the interplay of diplomacy, development and defense in the execution of national strategy...Add this curriculum to professional military education…Set training and exercise objectives that stress the diplomacy-development-defense interplay and reward those who manage this interplay effectively both in training and operations.

Improve Service and Institutional Adaptability to Deal with Rapid Change

Inculcation of adaptation skills is a critical aspect to building resilient soldiers of the future. There are many innovations in behavioral science that are changing the way people and systems adapt to the relentless changes extant in all aspects of society today. In addition to continuing the momentum of ongoing DOD Component actions in the area of adaptability training, the Federated Training Enterprise must be open to new ideas from outside the DOD context and integrate those that work into our training systems.

Explore the development and implementation of Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities "Adaptive" initiatives which fundamentally change the way the Services are institutionally trained and potentially their organizational constructs. [47]

Cross Cutting Training Areas

Together with experience, education and training are the key prerequisites of cultural change across the Department, and thus to achieving the strategic vision of this document. Responsibility for linking and synchronizing these three processes should be vested in a single DOD

[47] Department of Defense, Strategic Plan for the Next Generation of Training for the Department of Defense (DRAFT) (January 20, 2010), 16-18.

> Chief Learning Officer (CLO), supported by a Defense Science Board (DSB)-like advisory board focused on developing the right mix of education, training and experience. The CLO and advisory board should focus initially on "soft skill" areas such as human behavioral and cognitive sciences, complex decision making, and adaptability.[48]
>
> **Methods of Implementing Change**
>
> Human Capital. At the core of this resource is the cadre of professional trainers and educators dedicated to advancing the Federated Training Enterprise objectives. To address joint task training:
>
> The Federated Training Enterprise should actively recruit an elite core cadre of joint and integrated trainers with recent operational experience to address CoCom, joint task training objectives.
>
> This core cadre should be awarded a unique skill identifier after successful completion of the joint and integrated instructor course. This identifier should favorably factor into post-training tour assignments.
>
> The core cadre should be recruited for their strong professional competence, mentoring, and empathy skills.
>
> The core cadre should be trained to a high degree of proficiency in the art of coaching and mentoring to facilitate on the spot feedback, after action reviews, and formal debriefs.[49]

In summary, the Strategic Plan for the Next Generation of Training for the Department of Defense prescribes training goals heavily weighted in favor of developing adaptability, describes the desired training environment, and emphasizes specific technology requirements and methods for training delivery. It is particularly concerned with leveraging emerging technologies and rapidly incorporating lessons learned to achieve the training goals. It recognizes the importance of a highly competent and motivated corps of trainers and instructors. This document is noteworthy in calling for crucible training events[50] and the development of complex decision making skills. Both are essential to developing a more adaptive force. The idea of developing a force that is more adaptive is particularly important. The goal needs to be clearly understood in terms of developing a force more adaptable than it would otherwise be, not, as the document states at one point: "to ensure the total force remains relevant, agile and adaptive."[51] The notion that the current force is sufficiently adaptable undermines the rationale for efforts to develop adaptability skills.

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48 Ibid., 18.

49 Ibid., 22-24.

50 Ibid., 16. "Training must put students in difficult, unexpected situations, and require them to decide and act under time pressure."

51 Ibid., 12.

While the Strategic Plan clearly acknowledges the interrelationship of training, education, and experience, it does not prescribe a strategy for developing a more adaptable force that addresses this interrelationship. In fact, while a stated purpose of the document is to adjust the education strategy, no education strategy is described.

Of particular note, the document does not define adaptability, initially leaving those to whom the plan is directed to their own interpretation of the degree to which they are complying with the intent of the document. However, the Strategic Plan does take a first step in the direction of measuring the effectiveness of its training initiatives, including presumably the development of more adaptable forces, when it states that the JAEC will "[c]ollaboratively develop metrics to address the T2 Program goals."[52]

The role of leadership in designing and implementing a strategy is key. By addressing the document to the training community only, the most senior leaders in the Services are not brought into the efforts of a transformational program that touches on all aspects of training, education, and career development and that requires their leadership to advance. Of note, the Annex on investment guidance states:

> T2 components and their respective constituents will develop an informed, collaboratively developed Joint Training Roadmap and Investment Strategy that maximizes accomplishment of the guidance within fiscal constraints. Each investment shall be cross-referenced to the guidance it addresses or facilitates.[53]

In this case, a roadmap will be developed that is centered on the JKDDC, the JNTC and the Combatant Commander Exercise and Engagement Programs. A roadmap for developing adaptability will need to be drawn more broadly and will require the involvement of senior Service leadership in its development and execution.

The Strategic Plan offers one specific proposal for focused leadership by suggesting, but not establishing, a DOD Chief Learning Officer responsible for linking experience, education, and training. The authority of such a position is not clear. However, it is the Services that provide training, education, and career development. If they are to be effective leaders of transformation, there must be consensus on the goals to be achieved and accountability in the efforts to pursue them. An effective strategy will seek consensus and establish accountability.

A strategy is about ends, ways, and means. This strategy describes the desired ends, including the development of adaptability. It describes the ways envisioned to achieve those ends—immersive training environments and leveraging technology and the behavioral sciences. However, in describing the "means" of the strategy—the resources

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52 Ibid., ANA 10.

53 Ibid., ANA 10-11.

used to accomplish the desired ends, the emphasis is clearly on technology and the method of training delivery. Thus, the focus of resource allocation is on the deployment of technology and not on the substance of adaptability training.

The eleven page annex on training investment guidance continues to emphasize the importance of developing adaptability:

> Priority should be given to training and experimentation capabilities that are forward looking, address integrated operations and irregular warfare, and focus on key learning capabilities which improve skills in adaptability, agility, anticipation of the adversary, foreign language, cultural insights, empathy, social skills and negotiation.[54]

However, the specific guidance, directive in nature, is focused on specific functional areas and on technologies associated with the evolution of "the right mix of live, virtual, and constructive capabilities in support of realistic and relevant training anywhere anytime."[55] It is particularly concerned with integrating training in support of COCOM missions and eliminating duplication and redundant efforts of the Services. These are worthwhile goals, but emphasis should also be given to investment in human capital in terms of education, development of instructors and trainers, and personnel assignments that take individuals outside their comfort zones—one aspect of the training focus areas of this document. It is noteworthy that the "ten most urgent, as collaboratively determined, areas of training development and improvement"[56] address training functional areas and methods of delivering training, but do not specifically address the substance of training adaptability. In other words, in the allocation of resources, the focus is not on developing adaptability.

Clearly, the aim of this strategic plan is to develop a more adaptive force and it contains a large number of elements supportive of that goal. It would be enhanced by:

- A clearly defined definition of adaptability and adaptability-related skills,
- A commitment to a robust adaptability research and development plan,
- A more comprehensive plan for transforming not only training, but education as well,
- An allocation of resources that balances efforts to enhance the adaptability aspects of education and training with efforts to leverage the technology associated with training delivery, and
- Assignment of greater responsibilities and accountability for adaptability development to the senior Service leadership.

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54 Ibid., ANA-1.

55 Ibid., ANA 7.

56 Ibid., ANA-2.

Appendix E.
Abbreviations

AAR	After Action Review
AERG	Academic Program Executive Review Group
ARI	U.S. Army Research Institute for the Behavioral and Social Sciences
ATL	Adaptive Thinking Leader
BOC	Basic Officer Course
CCJO	Capstone Concept for Joint Operations
CLO	Chief Learning Officer
CLT	Commander/Leader Team
CNO	Chief of Naval Operations
COCOM	Combatant Commander
DOD	Department of Defense
DOTMLPF	Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities
GEL	Guided Experiential Learning
IDA	Institute for Defense Analyses
IT	Information Technology
JAEC	Joint Assessment and Enabling Capability
JAI	Job Adaptability Inventory
J/AMET	Joint/Agency Mission Essential Tasks
JIIM	Joint, Interagency, Intergovernmental, Multi-National
JKDDC	Joint Knowledge Development and Distribution Capability
JNTC	Joint National Training Capability
JOE	Joint Operational Environment
JTF	Joint Task Force
JTFC	Joint Training Functional Concept
MCTOG	Marine Corps Tactics and Operations Group
MiTT	Military Transition Team

NCO	Non-Commissioned Officer
OSD	Office of the Secretary of Defense
OUSD(P&R)	Office of the Under Secretary of Defense (Personnel & Readiness)
PLA	People's Liberation Army
PME	Professional Military Education
POA&M	Plan of Actions and Milestones
PSYOP	Psychological Operations
RFI	Request for Information
R&D	Research and Development
ROMO	Range of Military Operations
ROTC	Reserve Officer Training Corps
SAMS	School of Advanced Military Studies
SJT	Situational Judgment Test
SKA	Skills, Knowledge, and Attributes
SMARTS	System Measures Assesses Recommends Tailored Solutions
SWCS	Special Warfare Center and School
T2	Training Transformation
TECOM	Training and Education Command
TTP	Tactics, Techniques, and Procedures
USAARMC	United States Army Armor Center
USD(P&R)	Under Secretary of Defense (Personnel and Readiness)
USMA	United States Military Academy
USMC	United States Marine Corps
USNA	United States Naval Academy

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14. ABSTRACT

This report establishes the basis for an adaptability training strategy and for revisions to current training policy to implement such a strategy. The study underlying the report is based on the idea that because of the uncertainty of current and future threats, the key skill or attribute that individuals, units, and teams of commanders and leaders need to acquire is adaptability. The study employs a specific definition and model of adaptability. The major recommendations of this study can be summarized as follows: Adopt an explicit DOD definition of adaptability; Identify the specific skills and competencies required for adaptive performance within the military; Establish as DOD policy that operational training of units of all sizes and the training, education, and career development of individuals will seek to enhance the skills and competencies required for adaptive performance; Establish a senior and enduring leadership group within DOD responsible for the design and oversight of a comprehensive, long term adaptability training strategy that husbands limited resources; Establish detailed Service-level roadmaps, or plans of actions and milestones, that will effectively implement the adaptability training strategy; Establish a robust adaptability research and development program.

15. SUBJECT TERMS

adaptability, adaptive performance, cognitive readiness, intuition, critical thinking, creative thinking, self-awareness, self-regulation, social skills, training strategy, training policy, training validation.

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